THE AMERICAN NATURAL HISTORY

FIRESIDE EDITION

VOLUME III—BIRDS (CONCLUDED)

VICTIMS OF THE FEATHER TRADE.

Cock-of-the-Rock.
Snowy Egret.

Greater Bird of Paradise.

Resplendent Trogon.
Scarlet Ibis.

THE AMERICAN NATURAL HISTORY

A FOUNDATION OF USEFUL KNOWLEDGE OF THE HIGHER ANIMALS OF NORTH AMERICA

BY

WILLIAM T. HORNADAY, Sc.D.,

DIRECTOR OF THE NEW YORK ZOOLOGICAL PARK

AUTHOR OF "TWO YEARS IN THE JUNGLE," "OUR VANISHING WILD LIFE," ETC.

ILLUSTRATED BY 225 ORIGINAL DRAWINGS BY BEARD, RUNGIUS, SAWYER, AND OTHERS, 151 PHOTOGRAPHS, CHIEFLY BY SANBORN, KELLER, AND UNDERWOOD, AND WITH NUMEROUS CHARTS AND MAPS

WITH SIXTEEN PLATES IN COLOR

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BIRDS

(CONCLUDED)

CHAPTER XX

ORDER OF ODD FAMILIES

MACROCHIRES

WITH certain exceptions, the different Orders of American birds are founded on reasonable grounds and built up of homogeneous materials. As a rule, a few moments' examination of a bird enables one to name the Order to which it belongs. There is no difficulty about the birds of prey, swimmers, fishers, waders or woodpeckers.

Unfortunately, however, Nature has turned out of her workshop so many odd forms that it has been found necessary to have a certain number of Orders for them. In mammals we have seen that the Order *Ungulata* is of this character. In birds, there are two such Orders. One is that which contains the cuckoos, road-runners and kingfishers, and the other is that which forms the subject of this chapter.

The Order Macrochires means literally "odd ones," and its members do not belie the name. On the strength of certain resemblances in anatomical structure, observable only after the birds are dead and dissected, our hummingbirds, swifts and goatsuckers (*i. e.*, birds like the whippoorwill and nighthawk) are grouped together in this Order, in three Families, as follows:

ORDER MACROCHIRES

FAMILIES		EXAMPLES
GOATSUCKERS	*Cap-ri-mul'gi-dae*	Nighthawk, Whippoorwill.
SWIFTS	*Mi-cro-pod'i-dae*	Chimney Swift.
HUMMINGBIRDS	*Tro-chil'i-dae*	Ruby-Throated Hummingbird.

THE GOATSUCKER FAMILY

Caprimulgidae

THE NIGHTHAWK[1] is far from being a true hawk. It belongs to a Family of birds which have soft, owl-like plumage, and enormous mouths, fringed above with a row of stiff bristles, for use in capturing insects on the wing. Many years ago, when people believed many things that were not true, some believed that these big-mouthed birds sucked goats; hence the absurd name applied to the Family.

Whenever, during the hour just before sunset, you see a good-sized bird with dark plumage, long, sharp-pointed wings, and a big white spot on the under surface of each wing,—wheeling, soaring, dropping and circling through the air,—you may know that it is a Nighthawk, catching insects. Its flight is graceful and free, and when on the aërial war-path it is a very industrious bird. Some people compare this bird on the wing with bats; but I see no resemblance save the bare fact of semi-nocturnal flight. This bird, and the other members of its Family, are among the very few North American birds that capture winged insects high in mid-air, and for this reason, even if there were no other, all the Goatsuckers should be most rigidly protected everywhere. The time for shooting the Nighthawk for "sport" (!) has long gone by, never to return.

[1] *Chor-dei'les virginianus.* Length, about 9.50 inches.

When this bird alights upon a tree to rest, it chooses a large and nearly horizontal limb, on which it usually sits lengthwise. As it sits motionless on a large limb, the bird strongly resembles a knot. This is a transcontinental bird, being found from the Atlantic to the Pacific, in wooded regions, and northward to the Mackenzie River.

THE NIGHTHAWK.

THE WHIPPOORWILL[1] needs no introduction. It is more than a bird. It is a national favorite.

When the mantle of night has fallen, and the busy world is still, we who are in the country in summer often hear a loud, clear, melodious whistle from somewhere near the barn. As plainly as print, it exclaims, "*Whip*-Poor-*Will'!*" and repeats it, again and again. Before each regular call, there is a faint "*chuck*," or catching of the breath, strong emphasis on the "whip," and at the end a piercing whistle which is positively thrilling.

Sometimes the bird will come and perch within thirty feet of your tent-door, and whistle at the rate of forty whippoorwills to the minute. Its call awakens sentimental reflections, and upon most persons exercises a peculiar, soothing influence. It has been celebrated in several beautiful poems and songs.

[1] *An-tros'to-mus vo-cif'er-us.* Length, about 9.50 inches.

The range of this interesting bird is the same as that of the nighthawk. In the South both are replaced by another goatsucker called, from its whistle, the CHUCK-WILL'S-WIDOW. Until actually hearing it, one can scarcely believe that any bird of this Order can say things as plainly as this bird says "Chuck Will's Wid-ow!" The Pacific states, from British Columbia to Mexico, and eastward to Nebraska, have the POOR-WILL.

THE SWIFT FAMILY

Micropodidae

THE CHIMNEY SWIFT, or CHIMNEY "SWALLOW,"[1] has been for a century or more classified with the swallows and martins, but recent studies of its anatomy have caused its removal from their group. This is the bird whose nest and young sometimes tumble down into your fireplace in spring or summer, and cause commotion.

To me, the nesting habits of this bird seem like faulty instinct. A chimney is a poor place of residence for a bird, and the habitants frequently come to grief. If the aperture is small, the householder objects to having the chimney stopped by nests; and if it is large, so many Swifts may nest there that their noise is an annoyance. These birds get up and out before daylight, to hunt insects that fly at night, and doubtless many a "ghost" in a "haunted house" is nothing more frightful than a colony of these birds in the chimney.

This bird has the ability to fly straight up or straight down, else it could not enter or leave a chimney. It is quite

[1] *Chae-tu'ra pe-lag'i-ca.* Length, 5 inches.

an aërial gymnast, and feeds only when on the wing. Its flight is very graceful, and both in manner of flight and personal appearance it so closely resembles a short-tailed swallow that there are few persons who can distinguish the difference in the flying birds.

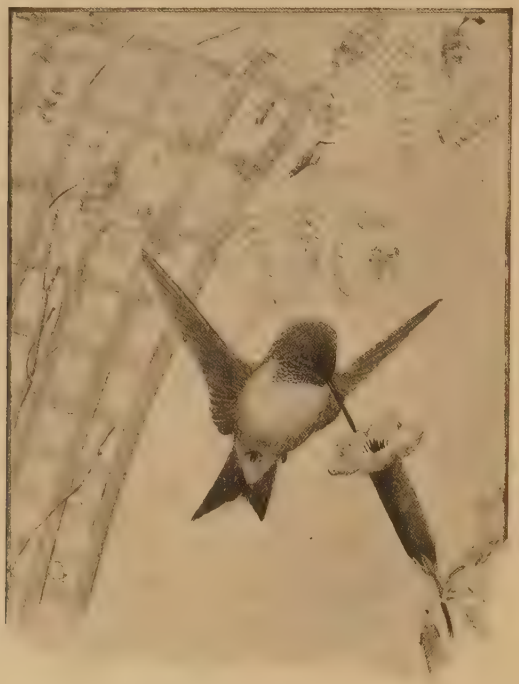
One strongly marked peculiarity of this bird is that the tip of each tail-feather ends in a sharp, wire-like point, caused by the shaft of the feather being projected considerably beyond the vane. The eastern Chimney Swift ranges westward to the Great Plains. On the Pacific slope is found another species, a close parallel to the preceding, called the *Vaux Swift*. The *White-Throated Swift* of the Pacific states is distinguished by its white throat and breast, and a few white patches elsewhere.

THE HUMMINGBIRD FAMILY

Trochilidae

For twenty years or more the exquisite gem-like birds belonging to this Family have been persecuted by the millinery trade, and slaughtered by thousands for hat ornaments. In the European centres of the odious "feather trade" the traffic in Hummingbird skins still continues. At the regular feather auction of August, 1912, in London, the New York Zoological Society purchased 1,600 Hummingbird skins at *two* cents each. In the first three of these sales for 1912 the total sales of Hummingbird skins were 41,090. In 1913, by an act of Congress, the odious traffic in wild birds' plumage for millinery purposes was stopped forever in the United States and all its territorial possessions.

The Ruby-Throated Hummingbird[1] represents the Family which contains the smallest of all birds. When the trumpet-vine on your veranda is in flower, you will see this delicate creature dart into view, like a large-winged insect,



RUBY-THROATED HUMMINGBIRD.

and poise itself easily and gracefully in mid-air at the mouth of the most conspicuous flower. Its tiny wings beat the air with such extreme rapidity and machine-like regularity that you see only a gray, fan-shaped blur on each side of the living bird. It holds itself in position with the greatest exactitude,

[1] *Troch'i-lus col'u-bris.* Length, 3.25 inches.

thrusts its long and delicate beak into the heart of the flower and, with the skill of a surgeon probing a wound, extracts the tiny insects or the honey so dear to its palate.

As the bird poises in mid-air, the sunlight catches the patch of brilliant ruby-red feathers on its throat, and sets it aflame. To make up for their diminutive size, and give them a fair share of beauty, Nature has clothed the throats and breasts of many Hummingbirds with feather-patches of the most brilliantly iridescent colors,—ruby-red, scarlet, green, blue and gold, —which flash like jewels. Others again have long, ornamental tail-feathers, ruffs and other showy decorations in feathers.

The Hummingbirds are so very diminutive one never ceases to wonder how such frail and delicate creatures, feeding only upon the smallest insects and the nectar of flowers, can make long journeys over this rough and dangerous earth, withstand storms, build their wonderful little nests, rear their young and migrate southward again without being destroyed. Of course their diminutive size enables them to escape the attention of most of the living enemies which gladly would destroy them.

The nest of a Hummingbird is about as large in diameter as a lady's watch, and the eggs, of which there are two, are the size of adult peas. The food of these birds generally consists of minute insects, many of which they find in large flowers. When at rest, perching, the average Hummer is not beautiful in form. Its head seems too large, its neck and body much too short and its wings too long. It seems top-heavy, and as if destitute of legs. It is on the wing that these creatures look their best.

What Hummingbirds lack in size, they try to make up in number. There are nearly five hundred species, and they are found only in the New World. They are thoroughly tropical, but in warm weather, and the season of flowers, they migrate as far north as Alaska, and as far south as Patagonia. Our country makes an acceptable summer home for about sixteen species.

The Ruby-Throat is the only one inhabiting the eastern half of the United States, all the others being found west of Arkansas and the Rocky Mountains.

CHAPTER XXI

ORDER OF WOODPECKERS

PICI

THE Woodpeckers are the natural protectors of the forests of the temperate zone. But for them, tree-borers would multiply without limit, and the number of trees that would fall before the insect pests is quite beyond computation. While the robin, the thrush and the warblers take care of the caterpillars and the leaf-insects generally, the woodpecker sticks to the business of his own guild, and looks after the pests that attack the bark and the wood. The tree-creepers assist by picking off insects from the outside, but when it comes to the heavy work of digging borers out of the bark by main strength, the woodpecker is the only bird equal to it.

There are about twenty-five species of woodpeckers in the United States.

Usually, the long, barbed tongue of this bird is sufficient to spear a borer, and drag it forth to meet the death it deserves. When this will not do the work, the woodpecker's claws take a good grip on the bark, and serious work begins.

Do not think, however, that because a rolling tattoo beaten on a hard dead limb can be heard a quarter of a mile, that the bird making the noise is working unusually hard. Quite the contrary. The loud tattoo is a signal, like the "cer-

tain whistle" of a small boy. In our Beaver Pond, the golden-winged woodpeckers sometimes beat on the galvanized-iron drums which protect the bases of the trees from the teeth of the beavers.

When a woodpecker is working hardest, you hear only a faint "chuck! chuck! chuck!" as he drives his sharp, wedge-like beak into the bark or soft wood. Often the falling chips are your first notice that a winged forester is at work aloft, digging out and devouring the larvae that, if left alone, bring decay and death to trees.

You may be sure that whenever you find one of these valuable birds at work, there is need for him. To-day a great many persons know their value and protect them. Occasionally, however, men who are so thoughtless or so mean as to engage in the brutal pastime known as a "side hunt," do lower themselves, and injure the landowners about them, by killing every woodpecker that can be found,—for "points." If all farmers only knew what a loss every "side hunt" means to them, such wicked pastimes would not be tolerated.

It is also to be added, with deep regret, that many Italians who come to America to make new homes for themselves bring with them the idea that it is right to kill birds of every description for food,—song-birds, woodpeckers, swallows and all others,—and to their murderous guns our most valuable woodpeckers are the easiest prey in the world. A woodpecker hard at work trying to save a giant oak from insect destruction never dreams of being treacherously shot in the back. For all such bird-murderers the remedies are: first, education; then, punishment to the limit of the law.

Although the woodpeckers are not counted as birds of song, to me the loud, joyous cry of the flicker, the downy and the red-head, ringing through the leafy forest aisles, is genuine music. One species cries "*Cheer*-up! *Cheer*-up!" and it cheers-up and thrills me to hear it. Even in summer, when other birds are plentiful, it is a welcome sound. In bleak winter, when the great bulk of bird-life has vanished southward, and you toilsomely tread the silent forest, ankle-deep in snow, the world seems lifeless and drear—until you hear the clarion greeting of the golden-winged woodpecker. It is enough to stir the soul of a Digger Indian with a pleasing sense of companionship in life.

It is only the children of the cities who need to be told that woodpeckers have two toes in front and two behind, to enable them to cling to tree-bark; that the natural perch of such a bird is the perpendicular trunk of a tree; that sometimes they store acorns in holes which they dig in the sides of decayed trees, not in order that worms in those acorns may develop, but in order to eat the acorns themselves. They nest high up in hollow tree-trunks, which they enter through round holes of their own making.[1]

It is a good thing to feed wild birds of all species that are either useful or beautiful. The woodpeckers are the largest insectivorous birds that remain in the North over winter, and they appreciate friendly offerings of suet or fat pork, nailed

[1] Those who are specially interested in the habits of woodpeckers may profitably consult a report on "The Food of Woodpeckers," by Professor F. E. L. Beal, published by the Department of Agriculture in 1895. The exact proportions of the various kinds of food consumed by seven species have been determined by examination of the stomachs of several hundred birds, and the figures quoted later on are from that report.

high up on conspicuous tree-trunks. In the Zoological Park we put up every winter at least twenty-five two-pound strips of fat pork, for the woodpeckers and chickadees which live with us all the year round.

GOLDEN-WINGED WOODPECKER.

The Golden-Winged Woodpecker[1] is my favorite of the members of this Order. It is a bird of good size, dignified in bearing, decidedly handsome, and a great worker. He loves to hunt insects on the ground, occasionally, but is very alert and watchful, meanwhile. If you approach too near, he leaps into the air, and with a succession of wave-like sweeps

[1] *Co-lap'tes au-ra'tus lu'te-us.* Length, about 12 inches.

upward and downward, his golden wings flash back one of his names as he flies to safety on some distant post or tree. Unlike most birds of this Order, this species frequently perches crosswise on a limb, like a true perching bird.

This is the woodpecker of many names, some of which are *Flicker*, *High-Hole* and *Yellow-Hammer*. His regular call sounds like "*Cheer*-up!" but in spring he gives forth a call which comes very near to being a song. When written out, it is like "*Cook-cook-cook-cook!*" At that season, also, you hear this bird beat the "long roll," on a drum which Nature provides for him in the shape of a hollow tree with a thin, hard shell. The rapidity and force with which the bird strikes the blows producing this sound are almost beyond belief.

An examination of the stomach contents of many specimens of this species showed 56 per cent of insect food, 39 vegetable and 5 mineral. Of the insect food, ants made up 43 per cent and beetles 10 per cent. The vegetable food represented two kinds of grain (corn and buckwheat), eighteen kinds of wild berries, and fifteen kinds of seeds, mostly of weeds. Out of 98 stomachs examined in September and October only 4 contained corn. Practically, this bird does no damage to man's crops, but destroys great quantities of harmful insects.

The range of the Golden-Wing embraces the eastern half of the United States to the Rocky Mountains, where it is met by the *Red-Shafted Flicker* of the Pacific slope.

The Red-Headed Woodpecker[1] need not be described, because, in "Hiawatha," Longfellow has immortalized it.

[1] *Mel-an-er'pes e-ryth-ro-ceph'a-lus.* Length, 9.50 inches.

This bird, "with the crimson tuft of feathers," was the identical Mama which gave Hiawatha the timely "tip" which enabled him to put the finishing touch to old Megissogwon, and so end in triumph "the greatest battle that the sun had ever looked on."

As a return for this kindness, Hiawatha did the one mean act of his life. He took Mama's little red scalp, and "decked" his pipe-stem with it,—as coolly as if he had been a modern servant-girl decorating a forty-nine-cent hat.

This is a very showy bird, and recognizable almost as far as it can be seen,—brilliant crimson head and neck; white breast, sides and rump, and jet-black back and tail. In the Mississippi Valley, thirty years ago, this was one of the most common birds. Now, thanks to man's insatiable desire to "kill something" that is unprotected, it has been so greatly reduced in number that it is seldom seen. It is an omnivorous feeder, eating insects, fruit, beech-nuts, corn and other grain, according to necessity. Its cry is loud and far-reaching, and sounds like "*Choor ! Choor !*" As to migrating, it seems unable to make up its mind whether to become a "regular migrant" or a "winter resident." Sometimes it migrates southward during the early winter, and sometimes it winters in the North.

An examination of the stomachs of one hundred and one Red-Headed Woodpeckers revealed 50 per cent of animal food and 45 per cent vegetable. Of the former, ants made up 11 per cent, and beetles 31 per cent. The fruit and vegetable food represented five kinds of cultivated fruit (strawberries, blackberries, cherries, apples and pears), and fifteen kinds of

wild fruit and seeds. The insect food consisted of ants, wasps, beetles, bugs, grasshoppers, crickets, moths, caterpillars,

RED-HEADED WOODPECKER.

spiders and thousand-legged worms. In the fruit season the Red-Head undoubtedly does considerable damage to fruit crops, more by mutilating fruit, perhaps, than by actual loss

through fruit wholly consumed; and if these birds were as numerous as sparrows, it would be necessary for fruit-growers to take precautions against them during the fruit season. The damage done to corn appears to be quite insignificant. (Professor F. E. L. Beal's report.)

The great fondness of the Red-Head for beechnuts, and its habits of storing them up for winter use, in holes and crevices, are well known.

The Ant-Eating Woodpecker[1] of the Pacific slope is the most conspicuous and interesting bird of this Order in that region, either around the suburban home, on the ranch or in the mountain forests. This is the species which is now celebrated in word and picture for its habit of digging hundreds of holes in soft bark or dead tree-trunks, and "storing" an acorn in each hole, for future food.

The Downy Woodpecker[2] is a small gray-and-black species, modest and quiet in demeanor, but quite as common about the haunts of man as the golden-wing. It is the smallest species found in the United States and is the one which is most in evidence in winter.

This bird ranks high as a destroyer of insects, and in the percentage of insect food consumed leads all other woodpeckers that have been studied by the Biological Survey of the Department of Agriculture. An examination of 140 stomachs revealed 74 per cent of insect food and 25 of vegetable. The vegetable food consisted chiefly of seeds of the poison ivy, poison sumac, mullen, pokeberries, dogwood and

[1] *Mel-an-er'pes for-mi-civ'o-rus.*
[2] *Pi'cus pu-bes'cens me-di-an'us.* Length, 7 inches.

woodbine. The fruits consisted of service-berries, strawberries and apples.

Apparently this bird is almost worth its weight in gold to the farmer who has valuable trees and fruit: and in winter

DOWNY WOODPECKER.

the farmer who is wise will put up suet, fat pork and bones bearing some raw meat, on the trees in his orchard and woods.

THE HAIRY WOODPECKER[1] is so close a counterpart of the downy, in appearance and habits, that it is unnecessary to de-

[1] *Dry-o-ba'tes vil-lo'sus.* Length, 10.50 inches.

scribe both. The former is larger, but its rank as an insect exterminator is a little lower. Its proportion of insect food is 68 per cent, and vegetable 31 per cent. Of the former, ants make up 17 per cent, beetles 24 per cent and caterpillars 21 per cent. The only cultivated fruits found in 82 stomachs were blackberries; but wild fruits were well represented.

This bird inhabits practically the same region as the downy woodpecker, and belongs in the ranks of the farmer's best friends.

The Yellow-Bellied Sapsucker[1] is practically the only woodpecker which inflicts serious damage upon man's property; and possibly it may in some localities become so numerous as to require thinning out. Any bird which deliberately girdles a tree and kills it is a bird entitled to serious consideration, and to punishment according to the actual harm it does.

This bird eats great quantities of insects, but as dessert it is fond of the sap of certain trees, among which are the maple, birch, white ash, apple, mountain ash and spruce. Into the soft, green bark of these trees this Sapsucker drills small, squarish holes, that look like gimlet holes. Usually they are placed in a horizontal line, and sometimes in mathematical groups. Occasionally several lines of these holes will quite girdle a tree. The bird not only drinks the sap that exudes, but he lies in wait to catch the winged insects and ants that are attracted to the sweet fluid, and devours great numbers of them.

Dr. C. Hart Merriam, who has closely observed the work of the Sapsucker, states that frequently mountain-ash trees

[1] *Sphy-ra-pi'cus va'ri-us.* Length, 8.25 inches.

are girdled to death by this bird, but that trees of greater endurance, like the apple and thorn-apple, are more able to survive its attacks. Another observer, Mr. Frank Bolles, declares that in well-wooded regions the damage it does is too insignificant to justify its destruction. Mrs. Mabel Osgood Wright states that in Connecticut, "where these birds are plentiful, many orchard-owners cover the tree-trunks with fine wire netting."

"This species," says Professor Beal, "is probably the most migratory of all our woodpeckers, breeding only in the most northerly parts of the United States, and in some of the mountains farther south. In the fall it ranges southward, spending the winter in most of the eastern states. It is less generally distributed than some of the other woodpeckers, being quite unknown in some sections, and very abundant in others."

In its general color scheme this is a bird of many and much-mixed colors—black, white and yellowish indescribably varied—both above and below. The top of the head and the throat are bright red; and the sides of the head have two broad streaks of white, and two of black. The name of the bird is derived from the predominating greenish-yellow color of its breast and abdomen.

The Pacific coast has the *Red-Naped Sapsucker*, a subspecies of the above, of similar tree-girdling habits; the *Red-Breasted Sapsucker*, one of the commonest woodpeckers found from Oregon to Lower California, and two others—the *Northern Red-Breasted* and *Williamson's*.

CHAPTER XXII

ORDER OF CUCKOOS AND KINGFISHERS

COCCYGES

THIS Order (pronounced Coc'si-jēz) represents an effort to find a place for three familiar Families of birds whose members have something in common, yet in their most noticeable features are widely different. Both in their structure, habits and mode of life, the kingfisher and cuckoo are widely different from each other; and if there is one really good reason why these birds should be placed in the same Order, the writer would be pleased to have it pointed out. Their feet are totally different, and so are their beaks, their tails and their plumage. Any future revision of the classification of birds should strike this Order, early and hard.

THE CUCKOO FAMILY

Cuculidae

THE YELLOW-BILLED CUCKOO,[1] or "RAIN-CROW," will fitly represent the Cuckoo Family. It looks like an insect-eating perching bird, and in reality it is one! You can easily recognize it by its extreme length and slenderness, the fan-like shape of its tail when spread, its upper surface of glossy

[1] *Coc-cy'zus americanus.* Length, about 12 inches.

drab—or gray-brown—and its white under surface from throat to tail. To carry out this color scheme to its logical sequence, the upper mandible is dusky brown and the lower one is yellow.

This bird derives one of its common names—Rain-"Crow"—from the fact that its peculiar cry is heard oftenest on still and cloudy summer days—two conditions which to the weather-wise farmer always portend rain. Its cry is a weird, gurgling note which sounds like "Cowk-cowk-cowk-cowk!" and usually it comes from the heart of a thick bush or tree which effectually screens the bird. It seems to be fully aware of the dangers which beset all birds which attempt to live in the open with civilized man, for it lives amid the forest shadows.

YELLOW-BILLED CUCKOO.

This bird, and also its twin species, the Black-Billed Cuckoo, lives almost wholly upon insects. Of 155 Cuckoo stomachs examined by the Department of Agriculture, only one contained any vegetable food—two small berries. Nearly half the Cuckoo's food proved to be caterpillars, 2,771 of which were found in 129 stomachs. It was not uncommon for one bird to contain more than 100 of them. "During May and June, when tent-caterpillars are defoliating the fruit trees, these insects constitute half of the Cuckoo's food."

The stomachs examined contained remains of sixty-five species of insects, in the following percentages: beetles, 6; bugs, 6½; grasshoppers, 30; caterpillars, 48½; other insects, such as web-worms, tussock-moths, army-worms and moth larvae, 9.

From the results of this investigation it is clear that our two species of Cuckoo are to be numbered with the farmers' best friends among birds. As an estimate, I should say that each of these birds that enters a section devoted to farming and fruit-growing is worth to that section about $10 per season. The charge that Cuckoos devour the eggs, or egg-shells, of other birds was proven by the finding of shells "in several stomachs, but only in very small quantities—no more than was found in the stomachs of nearly every species that has been examined." Thus the offence charged proves to be too trivial to consider.

The Yellow-Billed Cuckoo inhabits the eastern half of the United States to the Great Plains, and the Black-Billed ranges westward to the Rocky Mountains, from Canada to the tropics. From the Rockies to the Pacific, and up to British Columbia, is found the *California Cuckoo*, a close counterpart of the Yellow-Billed species.

The Road-Runner, or Chaparral Cock,[1] is a very strange bird; and many strange "yarns" have been told of it. It is remarkably odd in form, and also in its habits. It is about the size of a small crow, with a tail as long as its entire body and head, and legs that are so long and strong they seem like those of a grouse, save that the toes are longer.

[1] *Ge-o-coc'cyx cal-i-for-ni-an'us.* Length, 21 to 23 inches.

The body is slender, but the neck and head are large, and the head has a conspicuous crest. The beak is large. Although this bird has wings, it seldom uses them, and they must be constantly growing smaller through disuse.

This strange bird is a habitant of the Southwest, from Texas to southern California and southward, and lives on the ground, in the low, dry brush which is called chaparral (shap-a-ral′). It feeds upon every living thing inhabiting that region which it can catch and swallow—mice, lizards, small snakes, centipedes and insects. It is one of the most nervous birds imaginable—suspicious of everything that moves, and ready to make off without stopping to reason why.

It exhibits a decided preference for the smooth trails and paths through its beloved chaparral, and when alarmed it does not rise and fly, but makes off running, in the trail. It runs with great swiftness and seeming ease, but Dr. D. T. MacDougal has been informed that Mexican boys sometimes run them down, on foot, and either kill them with sticks or catch them alive.

This bird is also great at leaping, as we have seen in keeping it in captivity. Instead of flying to the top of a cedar-tree perch six feet high, and down again, it always leaps, with closed wings; but in leaping up it prefers to take a short run to acquire momentum. If this bird goes on ten thousand years in its present habits, by the end of that period its descendants probably will be without the power of flight, but provided with legs and feet so strong and full of spring that they can leap twenty feet.

THE KINGFISHER FAMILY

Alcedinidae

This family is widely and beautifully represented in the Malay Archipelago, but only three species are found in the United States. The BELTED KINGFISHER[1] is of almost universal distribution throughout North America, from the Arc-

THE BELTED KINGFISHER.

tic Barren Grounds to Panama and the West Indies. Go where you will, in its season, where small fish abide, there will you find it. It is dignified, handsome, alert and a true sportsman. Its favorite perch is a dead limb over still water, from which it can command a wide view, and swoop to the surface of the water in five seconds of time. You will know it by its bright-blue upper surface; high and saucy crest; long, dagger-like beak; white under surface and broad belt of blue

[1] *Cer'y-le al'cy-on.* Length, about 12 inches.

around the upper breast. Its cry is a metallic rattle, like "*Churr-r-r-r-r-r!*" and its food is small fish. It nests in a hole dug several feet horizontally into a perpendicular bank of earth, near water, or in a hollow tree.

Now and then complaints are uttered against our old belted friend, because he catches and eats small fishes, quite as if some one grudged him his daily food. All such complaints are totally unworthy of real men, and I trust that as long as our country endures, we will hear no more of them. When this country becomes too poor, or too mean, to support the few kingfishers that remain in it, it will be time for all Americans to emigrate.

The feather millinery trade has been very destructive to the kingfishers. At the first feather auction in London following the closing of the American market on October 4, 1913, 22,810 skins of kingfishers were returned to their owners because they could not be sold. But for our new law, those skins would probably have been consumed in our country as hat ornaments.

CHAPTER XXIII

ORDER OF PARROTS AND MACAWS

PSITTACI

THE parrots, parrakeets, macaws and cockatoos form a large group, containing in all more than 500 species. Of these, about 150 inhabit the New World, but only one species is found in the United States. South America contains the greatest number of species; Africa and Asia are but poorly supplied, and Europe has none. The widest departures from the standard types are found in New Zealand and Australia.

Although these birds are by nature thoroughly tropical, some of them range far into the temperate zones. This Order contains a larger proportion of beautifully colored birds than any other. Among the parrots, parrakeets, macaws and lories, there is a lavish display of brilliant scarlet, crimson, blue, green, yellow and purple, while all save a few of the cockatoos are snowy white.

The members of this Order are specially distinguished by their bills and feet. Of the former, the lower mandible is a short but powerful gouge, while the upper mandible is a big hook, with a thick and heavy base, and a long, sharp point.

The foot of a bird of this Order is evenly divided, with the

second and third toes pointing forward, and the first and fourth pointing back. The tails of most parrots are rather short, and square at the end, and the legs are very short. With but one or two exceptions, all the 500 species of this Order feed upon fruit, seeds and flowers.

The Parrots are celebrated by reason of the natural inclination of some species to mimicry, and their ability to learn to talk. They are naturally sedate and observant, possess excellent memories and are fond of the companionship of man. The broad, fleshy tongue of a parrot renders possible the articulation of many vocal sounds, and when a certain phrase is endlessly repeated to a parrot that is secluded from other sounds, the bird is sometimes moved to remember and repeat it. The *African Gray Parrot* is the most celebrated talker, and its value is from $15 upward. Next in rank comes the Mexican *Double Yellow-Head*, although the *Carthagena Parrot*, being a good talker and a more hardy bird, is rapidly becoming more popular. Of both these species, the price in the New York bird-stores is from $10 to $12.

The parrot of the most remarkable habits is the Kea, of New Zealand, a bird with very large and strong feet, which not only loves fresh mutton, but sometimes kills sheep on its own account, for food purposes.

The Parrakeets are really small, trim-built parrots, with long, sharp-pointed tails. Excepting the Thick-Billed Parrot, which has been seen in southern Arizona, this Family contains the only member of the Order Psittaci which inhabits the United States. The Carolina Parrakeet[1] once ranged

[1] *Co-nu'rus carolinensis.* Length, about 12 inches.

northward in summer to Maryland, Lake Erie and Iowa, and as far west as Colorado; but now all that is only so much history. To this charming little green-and-yellow bird, we are in the very act of bidding everlasting farewell. Ten specimens remain alive in captivity, six of which are in the Cincinnati Zoological Garden, three are in the Washington Zoological Park and one is in the New York Zoological Park.

Regarding wild specimens, it is possible that some yet remain in some obscure and *neglected* corner of Florida; but it is extremely doubtful whether the world ever will find any of them alive. Mrs. Minnie Moore Willson, of Kissimee, Florida, reports the species as totally extinct in Florida. Unless we would strain at a gnat, we may just as well enter this species in the dead class; for there is no reason to hope that any more wild specimens ever will be found.

The former range of this species embraced the whole southeastern and central United States. From the Gulf it extended to Albany, New York, northern Ohio and Indiana, northern Iowa, Nebraska, central Colorado and eastern Texas, from which it will be seen that once it was widely distributed. It was shot because it was destructive to fruit and for its plumage, and many were trapped alive, to be kept in captivity. I know that one colony, near the mouth of the Sebastian River, east coast of Florida, was exterminated in 1898 by a local hunter, and I regret to say that it was done in the hope of selling the living birds to a New York bird-dealer. By holding bags over the holes in which the birds were nesting, the entire colony, of about sixteen birds, was caught.

Everywhere else than in Florida the Carolina Parrakeet has long been extinct. In 1904 a flock of thirteen birds was seen near Lake Okechobee; but in Florida many calamities can overtake a flock of birds in ten years. The birds in captivity are not breeding, and so far as perpetuation by them

Drawn by Edmund J. Sawyer.

CAROLINA PARRAKEET.

is concerned, they are only one remove from mounted museum specimens. This parrakeet is the only member of its order that ranged into the United States during our own times, and with its disappearance the order Psittaci totally disappears from our country.

In color this bird had a bright-green body, and yellow head and neck. It fed upon fruit and seeds, and nested in hollow trees.

The Macaws are large, showy birds with very long, pointed tails, and the most awful voices for screeching ever made for feathered folk. They are found only in the New World from Mexico to Paraguay, and in the Andes up to 10,000 feet. Either in flight, or at rest in the green tree-tops, they are exceedingly showy and attractive birds, and to find a flock in the depths of a tropical forest is an event to be remembered. In hunting macaws in the delta of the Orinoco, about every fourth bird that was mortally wounded would hook its beak over a small branch, die and hang there until I would be reluctantly compelled to make my fellow collector, who was a good climber, climb up to the bird and throw it down, with much anger and unnecessary violence.

It is a pity that such beautiful birds should have such ear-splitting, nerve-racking voices. Although they seldom can be taught to talk, never cease to scream until dead, and are very apt to bite most unexpectedly, they are often kept as household pets.

The Blue-and-Yellow Macaw,[1] orange-yellow below and cobalt-blue above, is one of the species most frequently seen in captivity. In the bird-stores of New York they sell at from $10 to $15 each. The *Red-and-Blue Macaw* is another common species. The beautiful plum-colored bird occasionally seen is the *Hyacinthine Macaw*, from Brazil.

The Cockatoos are mostly—but not all—snow-white birds, with lofty and beautiful triangular crests which can be erected at will, with striking effect. They inhabit Aus-

[1] *Ar'a ar-a-rau'na.* Length, about 30 inches, of which the tail constitutes about 18 inches.

tralia, Celebes, the Philippines and the southern islands of the Malay Archipelago. They are easily tamed, talk readily, take kindly to training and become very affectionate and satisfactory companions.

CHAPTER XXIV

ORDER OF BIRDS OF PREY

RAPTORES

TO every farmer and poultry-raiser the birds of this Order are divided into two groups, friends and enemies. Inasmuch as feathered friends are to be encouraged, and all enemies slain, the standing of each species becomes a life-or-death matter. America is a wide and populous country, and despite the labors of the Biological Survey of the Department of Agriculture, there are yet millions of persons who desire precise information regarding our hawks and owls. Because of the economic importance of the subject, we will devote a liberal amount of space and effort to the important members of this group. The Families of the Order are as follows:

ORDER RAPTORES

FAMILIES		EXAMPLES
BARN OWLS	*Stri-gi'dae*	Barn, or Monkey-Faced, Owls.
HORNED OWLS	*Bu-bon'i-dae*	Horned, Burrowing, Snowy and Screech Owls.
HAWKS	*Fal-con'i-dae*	Hawks, Kites, Buzzards and Eagles.
VULTURES	*Ca-thar'ti-dae*	California, Turkey and Black Vultures.

THE BARN OWL FAMILY

Strigidae

It is now a well-established fact that some owls are among the most beneficial of all birds, inflicting little damage upon the producers of poultry, and conferring vast benefits upon the

farmer by the destruction of mammal and insect pests. Inasmuch as their regular working hours are from sunset to sunrise, they wage successful war on the nocturnal mammals which remain quiet during the daytime in order to escape hawks and other daylight enemies.

SKELETON OF A BIRD OF PREY. (BALD EAGLE.)

1. Upper mandible.
2. Lower mandible.
3. Hyoid.
4. External nostril.
5. Orbit.
6. Occiput.
7. Cervical vertebrae.
8. Clavicles.
9. Coracoid.
10. Ulna.
11. Radius.
12. Carpals.
13. Metacarpals.
14. Digits.
15. Sternum.
16. Keel of sternum.
17. Pelvis.
18. Fibula.
19. Tibia.
20. Tarsus.
21. Digits of foot.

Owls are exceedingly interesting birds, and in them there is also much to admire. They take life seriously; they have but few nerves, and seldom use them. Rarely do they become really tame or affectionate, but easily become very indignant at real or fancied affronts. Like many people of few words and solemn manner, they are not nearly so wise as they look. They are easily caught in steel traps, or shot; and they are much given to nesting in situations that are wide open to attack.

Omitting the subspecies—which are only geographic races—there are eighteen species of owls in North America, north of Mexico. They vary in size from the tiny elf owl, of Arizona, only six inches in total length, to the great gray owl, of the arctic regions, thirty inches long.

With the exception of the great horned owl, and about three other species, the owls of our country are by no means so destructive to poultry and wild bird life as is generally supposed. The great majority of the species feed upon wild mice, rats, squirrels, shrews, fish, crustaceans and insects; and some of them render great service to man. Nearly all owls are night-flyers, and by reason of their soft, fluffy plumage, which renders their flight quite noiseless, they are specially fitted to keep in check the grand army of destructive rodents that roam abroad under cover of darkness.

Owls do very well in captivity, provided they are properly housed and fed, and have comfortable perches to sit upon. Naturally, they are most active at night, and quiet in the daytime. Be it known, however, that they cannot live long on a steady diet of beefsteak. Every owl must have a liberal al-

lowance of small birds, like English sparrows, and, if possible, an occasional small mammal, in each case with the feathers or hair upon it. Nature has constructed the owl to devour its prey entire—feathers, hair, bones and all, on the spot where it is captured.

By a curious rotary action of the stomach, all the desirable elements are extracted and assimilated, and the indigestible refuse—hair, feathers, bones, claws, etc.—is rolled into a ball called a "pellet," which is cast up, and expelled through the mouth. These pellets are sometimes collected at roosting-places, and when carefully examined by expert zoologists, it is possible to identify most of the animal remains, and tell what the bird has fed upon.

The Barn Owl, or Monkey-Faced Owl,[1] is the most oddly shaped of all the owls; it has the smoothest and most compact plumage, and proportionately the longest legs. Its general color is that of scorched linen—light brownish-yellow. Each small black eye is the centre of a sunburst of radiating feathers, and the whole face is surrounded by a heart-shaped ring of brown.

The Barn Owl is to rats and mice as the cuckoo is to the caterpillar. As a destroyer of the meanest vermin on earth (rats and mice) this bird has no equal. Whether north or south, in the tropics or the temperate zone, it loves to live under the roofs of civilized man, especially in church belfries, where it is not molested. In the town of Barrancas, at the head of the Orinoco delta, some Venezuelan boys piloted me into the best church in the place, showed me two Barn Owls

[1] *Strix pra-tin'co-la.* Length, from 15 to 17 inches.

nesting over the altar, and urged me to shoot them then and there. My refusal because the birds were very thoroughly "in sanctuary" was with difficulty comprehended.

N. Y. Zoological Park.

BARN OWL.

Many observations on the food habits of this bird have been made by examining the pellets that have been gathered from its roosting-place. In June, 1890, Dr. A. K. Fisher collected 200 pellets that had accumulated from two birds that roosted and nested in one of the towers of the Smithsonian building. These contained 454 skulls, of which 225 were of meadow mice, 2 of pine mice, 179 of house mice, 20 were of

rats, 6 of jumping mice, 20 shrews, 1 star-nosed mole and 1 vesper sparrow.

The Barn Owl rarely molests birds—probably never does so except when forced by hunger—and all over the world, wherever it is found, its favorite food is mice and rats. The number an industrious pair will destroy in a year is really very great, and this species deserves the most careful protection that man can give it. Fortunately, it and its subspecies are very widely distributed,—more cosmopolitan, in fact, than any other owl, save the short-eared.

THE HORNED-OWL FAMILY

Bubonidae

The Long-Eared Owl[1] looks like a small and imperfect imitation of the great horned owl. It can always be distinguished by its small size, and the fact that its horns appear to have been set too close together on the top of its head, and do not fit very well. Its total length is about 15 inches, and its general color is a fine mottling of gray, tawny and black, which produces a brownish-gray bird. It is found all over the United States.

The food of this very useful bird consists mainly of mice. In April, 1888, at Munson Hill, Virginia, Dr. Fisher collected about 50 pellets from under a tree in which a Long-Eared Owl had roosted, and found that they contained the following remains: 95 meadow mice, 19 pine mice, 15 house mice, 5 white-footed mice, 3 Cooper's mice, 26 short-tailed shrews and 13 birds. Of the birds, there were 11 sparrows, 1 blue-

[1] *A'si-o wil-son-i-an'us.*

bird and 1 warbler. Of this species Dr. Fisher says: "It is both cruel and pernicious to molest a bird so valuable and innocent as the one under consideration."

The Short-Eared Owl[1] is of about the same size as the preceding species, but its ears are so short that they look like two small feathers that have been thrust carelessly into the plumage directly above the eyes. Above, it is a brownish-yellow bird, and buffy white underneath. It is found from the arctic regions of North America to Patagonia, and throughout nearly the whole of the Old World except Australasia. Its food habits are very similar to those of the long-eared owl, and it is equally deserving of a perpetual close season.

The Barred Owl[2] has not so good a reputation as the three noticed above, but its record is not entirely bad. Out of 100 stomachs examined by the Biological Survey, three contained domestic fowls, one a ruffed grouse and one a pigeon. Six contained screech owls, one a saw-whet owl, three held sparrows, one a woodpecker, and two small birds were not identified. Against this debit was a credit of 46 mice, 18 other small mammals, 4 frogs, 1 lizard, 2 fishes, 2 spiders, 9 crawfish and 20 empties. The 18 small mammals consisted of 5 red squirrels, 1 flying squirrel, 1 chipmunk, 4 rabbits, 2 shrews, 2 moles, 1 weasel and 2 rats.

From this very exact evidence, the reader can judge of the value or lack of value of this bird to the country at large. It does not seem as if the forty-six mice are a fair equivalent for the useful birds and small mammals destroyed.

[1] *A'si-o ac-cip-i-tri'nus.* Length, from 14 to 16 inches.
[2] *Syr'ni-um va'ri-um.*

On the evidence available I am convinced that the Barred Owl does far more harm than good, that it clearly belongs in the class of intolerable bird pests and therefore should be destroyed.

The Barred Owl is next in size to the great horned owl. It is from 20 to 22 inches long, heavy bodied, round headed

Photograph and copyright, 1902, by W. L. Underwood.

BARRED OWLS.

and quite without "horns," or "ears." Its head, neck and breast are marked by many black horizontal bars on a gray or creamy-white ground, and the breast and abdomen have a few thick, perpendicular bars. Many times a big Barred Owl of my acquaintance has exclaimed to me through the darkness, in a fearfully hollow and sepulchral voice: "Whò? Whó-whó-whó-whó-*whó*-WHÓ? Ah!" It is like the war-cry of an angry ghost.

This bird ranges throughout the eastern half of the United States, and westward almost to the Rocky Mountains; and

it frequently finds its way into captivity. In hunting it is so courageous and determined that frequently it catches aviary birds through wire netting, and kills and devours them through meshes only one inch square.

The Great Gray Owl[1] is the largest member of this Family found in the New World. It is an arctic bird, one-fourth larger than the great horned owl, and even in winter has never wandered farther south than the Ohio River. In Alaska and British Columbia it inhabits the timbered regions, and does not wander far into the treeless Barren Grounds. Any one who captures a very large owl of a dusky-brown or dusky-gray color, larger than a great horned owl, but with *no ear-tufts*, may know that he has secured a specimen of the rare and handsome Great Gray Owl.

The Saw-Whet Owl[2] is a very small Owl, and so shy that few people ever see it; but it feeds almost *exclusively upon mice*, and any bird which wages perpetual war on those pests deserves honorable mention in these pages. In appearance it looks very much like a small gray-phase screech owl without ears. It may be looked for—but it will seldom be found—almost anywhere in the United States from the international boundary to the Gulf states and California.

The Screech Owl[3]—with an awful shiver in its voice, but *no screech* whatever—is so widely distributed, and so easily affected by climatic variations, that the original species has been split up into eight varieties, or subspecies. Thus we now have the Texas, California, Rocky Mountain, Mexican

[1] *Sco-ti-ap'tex neb-u-lo'sa.* Length, 25 to 30 inches.
[2] *Nyc'ta-la a-ca'di-ca.* Length, 8 inches.
[3] *Meg'as-cops a'si-o.* Length, 7 to 9 inches.

and Florida Screech Owls, and others too numerous to mention. The differences between all these are not very great. Let each American know his own Screech Owl, and study its habits, and he will then know the others quite well enough for all practical purposes.

To me, the cry of this little Owl is one of the most doleful sounds in animated nature, not even excepting the howl of

N. Y. Zoological Park.

SCREECH OWL.

a wolf. It is like the quivering, shivering, heart-broken wail of a lost spirit, and suggests chattering teeth and freezing vocal chords. Written out it is "*Woe-woe-woe-woe-woe-woe-woe*—ah!" But no phonetic spelling can even suggest the high-pitched mental and physical anguish expressed in the cry that one hears.

The Screech Owl is a round-bodied little fellow, sometimes

almost as broad as it is high; and its head is surmounted at its front corners by very respectable ears. In its gray phase, this bird looks very much like a dwarf great horned owl; but of course the black markings are not the same.

This Owl exhibits a peculiarity in color which must be specially noted. It has two distinct and widely different colors, red and gray. In the same locality will be found owls that are of a cold, black-and-white gray color, and others that are pale rusty-red, with white mottlings on the abdomen. For this very odd development, we are quite unable to account; and such lawless color variations are called "phases," possibly because they phase the naturalists who try to study out their whys and wherefores.

In its food habits, the Screech Owl prefers, if it can procure them, mice, grasshoppers, locusts, cut-worms, beetles, caterpillars, crickets, spiders, lizards, frogs and crawfish. If these are lacking, it attacks the English sparrow and almost any other small bird that comes handy, usually other sparrows. To show that when very hungry all birds look alike to him, he occasionally kills and eats a bird of his own species! Dr. A. K. Fisher's report on the "Hawks and Owls of the United States" sets forth in full detail the results of the examination of 255 stomachs of Screech Owls, of which the following is a summary of contents: 100 contained insects; 91, mice; 12, English sparrows; 26, other birds; 11, miscellaneous mammals; 9, crawfish; 7, miscellaneous food; 5, spiders; 5, frogs; 2, lizards; 2, scorpions; 2, earth-worms; 1, poultry; 1, fish; and 43 were empty. The following is a full list of the birds found: 12 English sparrows, 9 other sparrows,

3 juncos, 2 Screech Owls, 1 shore-lark, 1 water thrush and 15 unrecognized.

Leaving out the two Screech Owls, of the birds that were identified, the English sparrows formed practically one-half. On

YOUNG SCREECH OWLS.

this basis we will allow that of the unrecognized birds 7 were song birds. Add these to the 15 recognized song birds and we have a total of 21 song birds out of 255 stomachs examined.

The question is, What shall be the fate of the Screech Owl —encouragement, toleration or limitation? To me it seems that the number of Screech Owls should be strictly *limited* for the benefit of the song birds; but I do *not* believe in their extermination.

The Great Horned Owl[1] is, by necessity, an aërial pirate and highway robber—the tiger of the air. Its temper is fierce and intractable, and if you attempt to make friends with one in captivity, it will hiss like a snake, snap its beak like an angry peccary, and dare you to come on. Of all the birds I know, there is no other so persistently savage in captivity as this bloody-minded game-killer. Of course, the Owl is not to blame for the raw-meat appetite which Nature gave him, and for which he feels bound to provide; but there is no reason why he should have a temper like a black leopard toward those who feed him.

"Of all the birds of prey, with the exception, possibly, of the goshawk and Cooper's hawk," says Dr. A. K. Fisher, "the Great Horned Owl is the most destructive to poultry. All kinds of poultry seem to be taken, though when Guinea-fowls and turkeys are obtainable, it shows a preference for these. In sections of the country where it is common, the inhabitants complain bitterly of its ravages." In the museum of the Philadelphia Academy is an Owl which carried off from one farm twenty-seven individuals of various kinds of poultry before it was shot.

But let us give even the Horned Owl its just due. Mr. O. E. Niles, of Ohio, once found in a nest of this bird "several full-grown Norway rats with their skulls opened and brains removed," and on the ground under the tree which contained the nest he found "the bodies of *one hundred and thirteen rats*, most of them full grown!" Now, in the course of a year, would not one hundred and thirteen Norway rats consume

[1] *Bu'bo virginianus.* Length, from 20 to 24 inches.

and destroy enough grain to feed one hundred and ten head of poultry?

This is the summary of the contents of 127 stomachs of Great Horned Owls examined by the Biological Survey: 31

GREAT HORNED OWL.
With "horns" laid back in anger.

contained poultry or game birds; 8 contained other birds; 13 contained mice; 65 contained other mammals; 1 contained a fish; 1 contained a scorpion; 10 contained insects; and 17 contained nothing.

The bird-food represented the following: 21 domestic birds, 11 song birds, 3 ruffed grouse, 2 quail, 1 pinnated grouse, 1 pigeon, 1 rail, 1 wild duck, 1 Cooper's hawk and 2 unknown.

The mammals found were as follows: 46 mice and rats, 32 rabbits and hares, 7 shrews, 5 squirrels, 3 chipmunks, 4 pocket gophers, 2 skunks, 1 weasel and 1 bat.

Photograph by E. R. Warren.

YOUNG GREAT HORNED OWLS.

Beyond question, the debit balance against this bird is heavy, and justifies its destruction, wherever found; but at the same time, it goes against the grain to kill a bird which destroys so many rats. In British Columbia the Great Horned Owls became so fearfully destructive to grouse that finally the provincial game warden began systematically to destroy them. In the two years, 1910–11, 3,139 were killed, after which it was noticed that the grouse began to increase.

The Great Horned Owl, or Hoot Owl, as it is frequently called, is a bird of dignified and imposing appearance. Its big, round-topped horns of feathers are singularly like cats' ears in shape, and when with these are seen the fiercely glaring eyes of yellow and black, the half-yellow face and fluffy white feathers on the throat, the whole head of this bird is singularly like that of a Bengal tiger. The body plumage is a complex mottling and barring of black and brown, dull yellow and white, impossible to describe successfully.

But this bird can always be recognized by its large size, cat's-ear "horns," and the fine, black horizontal bars across its breast-feathers. From wing to wing, across its upper breast there is an assemblage of heavy splashes of black.

The eastern Great Horned Owl is the type species on which are based the *Western*, *Arctic*, *Dusky* and *Pacific* Horned Owls, which in combination cover practically the whole of North America down to Costa Rica. By reason of the live food available in winter, these birds are not migratory.

The Snowy Owl[1] is a bird of the Arctic wastes, and reaches the northern United States only as a winter visitor. Its occurrence with us varies from a total scarcity during some years to an abundance during others. During December, 1886—the beginning of the awful winter which killed over ninety per cent of the range cattle in Montana—we saw in the country in which we were hunting buffalo, in central Montana, at least twenty-five Snowy Owls. They were living on hares, rabbits and sage grouse, out in the open, twenty miles from the nearest timber. It was their habit to alight

[1] *Nyc'te-a nyc'te-a.* Average length, about 23 inches, the female being larger than the male.

upon the tops of the low buttes, in reality upon the ground, from which they could survey a wide circle of sagebrush plains. Whenever there is an annual "flight" of Snowy Owls, they are always particularly numerous in Minnesota.

But for its perfectly round and rather comical-looking head, this bird would be the most beautiful of all American owls. Its plumage varies from almost spotless snow-white, in some individuals, to white barred all over with narrow horizontal bands of black—which is really the standard color plan. The number and width of the black bands vary exceedingly in different individuals, some birds being rendered much darker than others.

The food of this species consists of every kind of wild bird or small mammal it can catch; but there is no evidence that it ever destroys poultry. In summer, when its far-northern home is full of migratory birds, nesting and rearing their young, its bill of fare is quite varied, but in winter it is confined to such winter residents as the ptarmigan, hare, rabbit, sage grouse and such small rodents as dare to venture forth from their burrows.

With the Burrowing Owl[1] of the western plains, the Owl Family may justly be regarded as "run to earth." This odd little owl does take shelter in the mouths of prairie-"dog" holes, but so far as I am aware there is no proof that it ever descends to the bottom of a burrow, or that it is chummy with the rattlesnake. It is reasonably certain that no owl in its right mind ever would fraternize with a rattlesnake, and neither would a prairie-"dog."

[1] *Spe-ot'i-to cu-nic-u-la'ri-a hy-po'gae-a.* Average length, about 10 inches.

The Burrowing Owl lives in the plains of the West and Southwest, from North Dakota to southern California. A closely related species is found in Florida, where it easily digs burrows in the sandy soil.

Many persons have the idea that this Owl is unable to dig, and is therefore dependent upon prairie-"dogs" and

Photograph by C. William Beebe, N. Y. Zoological Park.

SNOWY OWL.

badgers for a home. This is entirely erroneous. In soil that is reasonably loose, the Burrowing Owl is a most industrious and successful digger, and with his feet flings out the loose dirt and gravel in a shower. A pair of western birds which we kept in one of the bird-houses of the New York Zoological Park for two years burrowed so deeply into the

big pile of solid gravel in their enclosure that its interior became a perfect cavern.

In the land of plains and prairie-"dogs," the Burrowing Owl is a frequent corollary to a "dog" town, sitting on the highest point of a burrow mound, or, if alarmed, taking short flights to the suburbs. Between bird and rodent there appears to exist a *modus vivendi*, which is good so long as the bird does not come within reach of the legitimate owner of the burrow. As already mentioned (vol. I, p. 205), when the two are intimately mixed, the prairie-"dog" quickly kills the Burrowing Owl. It seems practically certain that the bird inhabits only the mouth of the prairie-"dog's" burrow, or burrows that have been abandoned.

This owl is far too small to kill even a half-grown "dog"; besides which, its favorite diet is grasshoppers, locusts, other insects, lizards and scorpions. It is to be noticed that, in 32 stomachs examined in Washington, one really did contain a portion of a prairie-"dog," and 2 contained 1 mouse each, but 33 contained insects only, some of them showing from 49 to 60 each of locusts and grasshoppers.

The color of a Burrowing Owl is a grayish mixture, darkest on the back, and lighter below, and the legs are long and naked, like those of a sharp-shinned hawk. In captivity our specimens dug extensive burrows for themselves, in doing which they threw out gravel and earth with astonishing force. They are savage little wretches, and murder each other at a shocking rate. The males fight savagely, and the western species will not live peacefully with that of Florida.

THE HAWKS AND EAGLES

Falconidae

This section of the Order Raptores contains a remarkable assemblage of forms, and the wide differences between some of the groups add zest to the study of them. Some are expert in fishing, some are of dignified and imposing bearing, some have beauty of plumage and one is the most beautiful flier in all the bird world. Not very many years ago most people regarded all hawks as so many robbers, deserving death.

In 1893 the investigations of the Department of Agriculture revealed the surprising fact that of all the forty-one species of day-flying birds of prey in North America, there were only four species whose destructiveness so far outweighed their useful services that they deserve to be destroyed. The others are either harmless to man's interests, or else so positively beneficial that they deserve careful protection. Beyond doubt, the careful and thorough investigations made by the Biological Survey and the publication of the results have resulted in the correction of popular errors which if persisted in would have caused enormous losses to the farmers of the United States.

As an object lesson, take the case of Pennsylvania.

In 1885 the legislature of that state enacted a law aimed at the wholesale destruction of hawks and owls, and authorizing the various counties to pay cash bounties for the "scalps" of those birds, at the rate of fifty cents each. Immediately the work of slaughter began. Many thousand scalps of hawks and owls were brought in, and over $90,000 were paid out for

them. At the same time, thousands of birds were killed that were neither hawks nor owls, and the collection of freak heads is a permanent joke in the office of the State Game Commission. It has been estimated that the "saving" to the agricultural interests of the state amounted to $1 for every $1,205 paid out as bounties! In this manner the balance of Nature was quickly and completely destroyed.

The awakening came even more swiftly than any one expected. By the end of two years from the passage of the very injudicious "hawk law," the farmers found their field crops and orchards so completely overrun by destructive mice, rats and insects, they appealed to the legislature for the quick repeal of the law. This was brought about with all possible haste. It was estimated by competent judges that the "hawk law" cost the farmers and fruit-growers of Pennsylvania not less than $2,000,000 in actual losses on valuable crops.

The moral of this episode is—*it is always dangerous, and often calamitous, to disturb violently the balance of Nature, either by the destruction of existing species of birds or mammals, or by the introduction of new ones.*

And here is another principle that I commend to every person who may be called upon to sit in judgment on any wild species that is charged with being a "pest" species: *Always take evidence on both sides; and never condemn any species until the evidence against it is direct, conclusive and fit to stand in a court of law.*

The American Osprey, or Fish Hawk,[1] is, by common consent, regarded as a sort of connecting link between the

[1] *Pan'di-on hal-i-ae-e'tus carolinensis.* Average length, about 24 inches; weight, 3 pounds.

Owl and Falcon Families. It is a good bird to lead a large Family, and it is to be regretted that those who dwell far from the sea-coast and large rivers lack opportunities for becoming well acquainted with it. Surely this bold fisher, who thinks

AMERICAN OSPREY.

nothing of dropping a hundred feet into ice-cold water, seizing a fish of nearly half its own weight and flying five miles with it, must appeal to every man and boy who loves the grasp of a good rod, and the musical click of a reel.

The boat trip up the Shrewsbury River, from New York to Long Branch, is worth taking in midsummer solely for the sight of the Ospreys, winging slowly over the still lagoon,

stalking their finny prey, and anon plunging with a loud splash into the water. Sometimes the bold fishers go quite out of sight. The most surprising thing about such performances is the size of the fish that an Osprey can lift and carry away.

In carrying a fish, an Osprey always grasps it on the back, with one talon well ahead of the other, and the head of the fish pointing straight forward. This is to secure a minimum of resistance from the air, and render it an easy matter to steer the prize to the home nest, or to a tall tree on which it may be devoured at leisure. It is no wonder that a three-pound Osprey carrying a one-pound fish is moved to jettison his cargo when he sees a hostile bald eagle bearing down upon him with empty claws, and his decks cleared for action.

The story of the Ospreys of Gardiner's Island is a most interesting chapter in bird life. The owner of that island is a relentless enemy to cats and gunners, and a fierce protector of all the wild life on the island, which is wholly his. His weapons are loaded for hunters only, and for several years the Ospreys have bred regularly around Mr. Gardiner's house, and all over the island. One pair of birds has occupied the same nest year after year, adding to the mass each year, until the nest contains a wagon-load of sticks of many sizes, and measures six feet in diameter. To-day, strange to relate, some of the Ospreys are nesting practically upon the ground, serenely confident of their security from all harm.

The Osprey is built like a light-weight athlete, all bone, tendon, hard muscle and wing power, and no fat. Its long, half-naked legs and powerful claws remind one of patent

grappling-hooks. The wings are long and acutely pointed, going well beyond the end of the tail. The whole neck and lower surface of the bird are white, but the back, wings and upper surface of the tail are dark-colored, as also is the upper

SPARROW HAWK.

half of the head. The plumage is compact, smooth and oily, as befits a diving bird.

In summer this bird is at home on the sea-coast from Alaska and Hudson Bay to the Gulf of Mexico, and along a few rivers, but in winter it migrates to southern Florida, the West Indies and northern South America.

The jaunty little SPARROW HAWK[1] is the smallest American hawk, and also the most beautiful. Its form is elegant, and its colors are varied and pleasing. As if desirous of admiration, it tolerates man at shorter range than any other hawk I know. Its cap is dull blue, its throat white with black side-patches, and its upper neck and back are bright rusty-brown. Its breast is salmon color, sparingly spotted, its knickerbockers are white, and its tarsi and feet are bright yellow. It inhabits the whole United States, and on northward to Great Slave Lake, but I think it is most plentiful on the prairie farms of the middle West.

As a destroyer of grasshoppers, beetles, crickets, caterpillars and other insect enemies, this little Hawk deserves to rank with the birds most beneficial to man. For so small a bird, the number of grasshoppers it consumes in a year is enormous. It never molests poultry, and when insects are obtainable never kills a song bird, but it does destroy great numbers of mice. It is reported that, of 320 stomachs examined, 215 contained insects; 29, spiders; 89, mice; 12, other mammals; 53, small birds; 1, a game bird; and 29 were empty. Many stomachs contained from 10 to 35 grasshoppers each, and of other insects from 25 to 40 in one bird was of common occurrence.

It must be noted at this point that when the Sparrow Hawk is rearing its young, it does sometimes catch young chickens; but the extreme infrequency of this may be judged from the fact that in the entire series of 320 specimens examined at Washington, taken at all seasons from January to

[1] *Fal'co spar-ve'ri-us.* Length, 9 to 10 inches.

December, and throughout a wide range of localities, not one stomach contained any remains of a domestic bird. In the early spring, before grasshoppers come, Sparrow Hawks often follow a plough very closely, to capture the mice that are ploughed up. Sometimes this bird is half-domestic in its habits, and nests in buildings erected by man. Wherever it is found, it should be a welcome visitor.

THE PIGEON HAWK[1] is a slightly larger bird than the preceding, very destructive to song birds, of little use to man and deserves to be shot wherever found. It kills sparrows, thrushes, goldfinches, vireos, bobolinks, swifts and a host of other species. Out of 56 specimens examined by Dr. Fisher, 41 contained small song birds and 2 poultry; 2 only had mice and 16 insects. This is a bird of plain colors, being bluish gray or brownish above, and lighter below.

Apparently the DUCK HAWK,[2] a geographic race of the PEREGRINE FALCON, never devours a mouse or an insect save by mistake. Out of 20 specimens, 7 contained game birds or poultry, 9 had eaten song birds, only 2 contained insects, and 1 a mouse. You may know this bird by the great size and strength of his "pickers and stealers." It can best be studied with a rope, a basket and a choke-bore shotgun loaded with No. 6 shot.

First, shoot both male and female birds, then collect the nest, and the eggs or young, whichever may be present. In doing this, however, be careful not to shoot the *Red-Tailed* or *Red-Shouldered Hawk*—both good friends of ours, who are en-

[1] *Fal'co col-um-ba'ri-us.* Length of male, about 10 inches; female, 2 to 3 inches more.

[2] *Fal'co per-e-gri'nus an-a'tum.* Length of male, 17 inches; female, 19 inches.

titled to protection. A Duck Hawk has *no red nor decided brown* upon it anywhere. In general effect it is a dull black bird with a white breast and throat, and white abdomen cross-barred with black. It inhabits all of America north of Chili.

The time was when the BALD EAGLE,[1] or WHITE-HEADED EAGLE, was known to every human being within the limits of the United States. To-day there are probably two million men in this country, speaking foreign languages only, but voting regularly and persistently, who do not know an Eagle from a parrot, nor the number of stripes there are in Old Glory. It is related by a reliable eye-witness that when an escaped parrot recently perched in one of the trees of City Hall Square, New York City, a dispute as to its identity was ended satisfactorily by some who oracularly pronounced it an "eagle bird."

But, no matter how many persons there are in this country who do not know our national bird, I will not humiliate "Old Baldy" by formally introducing him. To every intelligent American, the perfect bird, with its snow-white head, neck and tail, is recognizable at a distance of a mile or more. To see one perching on the topmost branch of a dead tree, overlooking a water prospect, with its snowy head shining in the sunlight like frosted silver, is enough to thrill any beholder. Even when in flight an eagle can be distinguished from all other birds by its slow and powerful wing-strokes, and the great breadth of its wings, especially near their extremities.

It is unfortunate that this Eagle does not acquire its white

[1] *Hal-i-ae-e'tus leu-co-ceph'a-lus.* Average length of male, about 34 inches; female, 38 inches; spread of wings, from 7 to 8 feet.

head and tail until its fourth year. The head is fully feathered, and the name "Bald" refers solely to its white appearance. Up to three years of age it is of the same general color as the golden eagle, and to distinguish the two species it is necessary to look at the lowest joint (tarsus) of the leg. If it is *naked*, the bird is a Bald Eagle; but if it is covered with feathers quite down to the toes, it is a golden eagle.

As a rule—to which there are numerous exceptions—the White-Headed Eagle is found along rivers, and the shores of lakes and ponds containing fish. Fish are its favorite food, and lambs are purely supplementary. As a regular thing, it catches fish out of the water, with neatness and despatch; but when it sees an osprey flying by with a large fish in its talons, the Eagle does not hesitate to levy tribute on the subject bird. Taken thus at a great disadvantage, the fish hawk has no option but to drop its fish, and go away to catch another, while the Eagle catches the prize before it touches the water and bears it away.

This act of the Eagle, and the extra trouble it puts upon the fish hawk in catching duplicate fish, is by a few writers taken seriously to heart. So is the additional fact that Eagles - like many human beings - often eat dead fish that are found floating upon the water, or are cast up on the shore. For these, and other reasons equally weighty (!), it has become almost a fashion among writers to denounce the Bald Eagle, and declare it a shame that such a bird ever was chosen as our national standard-bearer. Some have asserted that the brave and high-minded wild turkey would have been more appropriate!

Against all of this I have nothing to say. The American Eagle needs no defence from me. Whether

> "He clasps the crag with hooked hands,
> Close to the sun in lonely lands,"

or perches defiantly on the United States coat of arms, with a brow to threaten or command, he is beloved by at least ninety million people who will rise as one whenever he is really in need of defenders. Abroad, it once was well-nigh an international fashion to flout this bird, and the standard he bears; but since May 1, 1900, that fashion has gone out. Abroad, those who do not respect this bird fear him, wholesomely. At home, it is quite time for all strangers to secure an introduction to him, and for some of those who should be his friends but are not, to write him down no longer.

In its distribution, this Eagle ranges over the whole of North America from Mexico to Kamchatka. Considering the size of this bird, it holds its own remarkably well, even in New England. In Florida it is very abundant all along Indian River, and in one locality in the state of Washington it is so numerous that its depredations on the flocks of sheep-raisers are cause for serious complaint and reprisals.

In the East so many Eagles are caught alive and offered for sale that it is a difficult matter to find sale for one at $10. This bird so seldom destroys domestic animals, or game birds, there is no excuse for its destruction save possibly in a few far-western localities where it happens to be very numerous, and evinces a particular fondness for lambs.

About every six months there appears in some newspaper

an account of a child having been attacked by a fierce Eagle, and rescued by a heroic mother, or else actually carried off to the top of a tall tree or rocky cliff, from which the child was finally rescued unhurt, etc., etc. It is quite time that this absurd yarn, which is nearly as old as the Swiss Alps in which it originated, were consigned to the oblivion it deserves. Eagles know what guns are, and nothing is farther from their thoughts than attacking the children of civilized man, the arch-enemy of all wild life, and the exterminator of species.

The Golden Eagle[1] is in no sense whatever a golden-colored bird. Its plumage is dark brown, with a very slight outside wash of lighter brown. It would be much more appropriate to call it the "brown eagle." In appearance it looks very much like a white-headed eagle in its second year, except that its tarsi are *feathered quite down to the toes.* By this point it can always be distinguished from its nearest relative.

This bird has a very bad record as a destroyer of lambs, poultry, game birds, young deer, antelope, rabbits and other small mammals. It cares very little for fish, and prefers to frequent interior regions, where either domestic animals or wild species of good size are abundant. By preference it is a bird of the mountains, and although found all the way from the Atlantic to the Pacific, and from Mexico to the Arctic Ocean, it is most abundant in the great mountain ranges of the West. In the cattle country east of the Rockies, many a Golden Eagle dies ignominiously from eating poisoned meat that is intended for wolves.

[1] *A-quil'a chrys-a-ë'tos.* Size, about the same as the white-headed eagle.

I do not advocate the extermination of this bird: far from it; but it does seem quite clear that its numbers should be strictly limited by the use of firearms.

The Hawks of North America above Mexico form a group of about thirty-four species, not counting subspecies, and the conspicuous types are well worth serious attention.[1] Some of them are useful to man, and some are so destructive and generally useless that they deserve death. It is highly important that hawk enemies should be distinguishable from hawk friends.

The Red-Tailed Hawk[2] is the greatest of all destroyers of noxious four-footed animals. It might well be called the *Mammal-Eater*, instead of being universally miscalled the Hen Hawk, or Chicken Hawk.

The species of the above name inhabits the entire eastern half of the United States, and ranges westward to the Rocky Mountains, where it meets the subspecies known as the *Western Red-Tail*. By reason of the abundance of this bird, and its undoubted influence for good or evil upon agricultural communities, the Department of Agriculture has made a study of it which was particularly thorough. From Arizona to Connecticut, and in all seasons of the year, collections were made, until finally 562 stomachs had been collected and examined.

The result was a complete vindication of the moral char-

[1] To avoid the possibility of confusion, attention is called to the fact that the sparrow hawk, pigeon hawk and duck hawk, already described, belong to *Falco*, the genus of the falcons, a group quite distinct from those of the hawks now to be introduced.

[2] *Bu'te-o bo-re-al'is*. Average length of male, about 21 inches; female, 24 inches.

acter of the previously despised and persecuted "Hen Hawk." *Two hundred and seventy-eight specimens contained mice;* 131, other mammals; 54, poultry or game birds; 51, other birds; 47, insects; 37, amphibians and reptiles; 13, offal; 8, crawfish, and 89 were empty. It was found that poultry and game *did not constitute* 10 *per cent of the food of this Hawk*, and that all other beneficial creatures preyed upon, including snakes, *did not increase this proportion to* 15 *per cent.* Against this small debit stands a credit of 85 per cent, made up chiefly of destructive rodents.

"It is not to be denied," says Dr. Fisher, "that a good deal of poultry is destroyed by this Hawk; but the damage done is usually among the less vigorous fowls, in the late fall; and in view of the great number of injurious rodents as well as other noxious animals which this Hawk destroys, *it should seem equivalent to a misdemeanor to kill one, except in the act of carrying off poultry.* The fact that there are robbers among Hawks is no sound argument for exterminating any and every one."

This bird is very omnivorous in its habits. In the examination noted above, the remains of 35 species of small mammals were found, of which 30 were rodents, 5 were insectivores, and 1 (a common skunk!) was a carnivore. Of birds there were only 20 species.

The important markings of the Red-Tailed Hawk are its rusty-brown tail, back and head of blackish brown, white throat and light-colored breast streaked with dusky brown. The *immature bird has a gray tail, crossed by from six to ten dark bands, and the rusty-red tone of the adult bird is every-*

where absent. The head is large, and rather square in outline at the back.

There are varieties of this bird scattered all over the United States, and under most circumstances it is rather difficult to tell them apart.

The Red-Shouldered Hawk[1] has not only "red" shoulders, but also a red head, neck, back and breast. But there are many shades of red, and the so-called red on this bird is as widely different from the red of a cardinal as blue is from green. The so-called "red" on this Hawk is really a rusty brown; and by the great amount of it, the small, round head of the bird and its *black* tail crossed by about six bands of white, this species may easily be distinguished from the preceding.

This Hawk is to be counted with the farmer's best friends. Mr. J. Alden Loring knew a pair which for two years nested within fifty rods of a poultry farm on which were about 800 young chickens and 400 ducks, but never attempted to catch one. Mice constitute two-thirds of its food, but it is very fond of frogs and toads. In the 220 specimens examined in Washington were found the remains of creatures representing eleven classes of life. The food exhibit was made up as follows: 3 stomachs contained domestic fowls; 12, other birds; 102, mice; 40, other small mammals (16 species in all); 20, reptiles; 3, fish; 39, amphibians (frogs and toads); 92, insects; 16, spiders; 7, crawfish; and 1, earthworms.

The service rendered by the Red-Shouldered Hawk consists chiefly in the destruction of mice and grasshoppers;

[1] *Bu'te-o lin-e-a'tus.* Average length of male, 18 inches; female, 20 inches.

and birds of all kinds are touched very lightly. This species inhabits eastern North America from Nova Scotia and Canada to the Gulf, and westward to the Plains. The Pacific coast contains a variety known as the *Red-Bellied Hawk*, which is quite as honest about poultry as the eastern species.

SHARP-SHINNED HAWK.

THE SHARP-SHINNED HAWK[1] is a swift flier, a keen hunter and a great murderer of small birds. Like all the hawks, its upper surface is dark and its lower surface light. Its tail is long, and has three or four narrow, dark-colored bands across it, far apart, with the widest band nearest to the end. The wings, back, upper neck surface and upper tail are all bluish

[1] *Ac-cip'i-ter vel'ox.* Average length of male, 10.50 inches; female, 13 inches.

gray. The throat and under-parts of the body are white, plentifully cross-barred with rusty brown.

This is a small hawk—next in size to the pigeon hawk. Its beak seems rather small and weak, but its legs are long and its feet large; and these, backed up by swift flight and great courage and impudence, render this bird a winged terror. It hunts along fences like a dog hunting rabbits, and pursues song birds into their thickets and out again. Its principal food is song birds, and only at long intervals does it capture a mouse. This bird is rather too small to handle poultry with complete success.

The complete list of the bird remains found in 159 stomachs of Sharp-Shinned Hawks constitutes a tale of slaughtered innocents that is appalling. Six stomachs contained poultry, and 99 *contained song birds*, woodpeckers and a few others. Only 6 contained mice, and 5, insects; and 52 were empty. Of the wild birds, 56 species were identified. There can be no question regarding the necessity for the destruction of this bird, wherever it is found. It breeds throughout the entire United States, northward to the arctic circle, and southward to Guatemala. In some localities it is quite abundant.

Cooper's Hawk[1] is a companion in crime to the preceding species, and equally deserving an early and violent death. By a strange coincidence it bears a strong resemblance to the sharp-shinned hawk, both in form and color, but it is a much larger bird. Leaving size out of consideration, it is difficult to describe in words the slight differences that exist between the two.

[1] *Ac-cip'i-ter cooperii.* Average length of male, 15.50 inches; female, 19 inches.

Being a bird of strong and rapid flight, much strength and activity and great boldness, it is well equipped for raiding poultry-yards, and carrying off almost anything except geese and turkeys. Of 133 stomachs examined in Washington, 34

COOPER'S HAWK.

contained poultry or game birds; 52, other birds; 11, mammals; 1, a frog; 3, lizards; 2, insects; and 39 were empty. The game birds found were 1 ruffed grouse, 8 quails and 5 pigeons. Altogether, 21 species of useful birds had been eaten, but only 4 mice, 1 rat and 1 grasshopper.

No record could be much blacker than this, and Cooper's

Hawk is a pest whose career deserves to be ended by three drams of powder and an ounce and a half of No. 6 shot, whenever opportunity offers. If gunners could *only discriminate*, the killing off of this species would make great sport for them; but the trouble is, many innocent birds would be killed by mistake.

This bird inhabits the whole United States, but stops at the Canadian boundary, and goes south to southern Mexico.

The American Goshawk[1] is to Canada and Alaska what Cooper's hawk is to the United States—a wholesale destroyer of game birds, serving no useful purpose whatever. To the unprotected flocks of ptarmigan it is a genuine scourge, and it merits destruction. Fortunately this hawk visits the United States only in winter, and even then is by no means numerous. Those who have had opportunities to observe it in action consider it the boldest and most audacious hawk in America. It has been known to seize a freshly killed chicken from the side of the farmer who had slain it for dinner, and also to follow a hen into a house, and seize it in the presence of its owner.

The length of the Goshawk is from 21 to 25 inches. The top of its head is black, and its upper surface is bluish slate color. Its whole under surface is white, with many gray cross bars, in addition to which it is lined up and down with short, black lines, rather far apart. The lower tail surface is crossed by four gray bands.

The Marsh Hawk[2] is essentially a prairie hawk; and

[1] *Ac-cip'i-ter at-ri-cap'il-lus.*
[2] *Cir'cus hud-son'i-us.* Average length, about 22 inches.

in the open and fertile uplands of the Mississippi Valley it is one of the most conspicuous species. It loves farming regions wherein members of the Mouse Family are plentiful and cheap. In hunting it flies low, in a very businesslike way, just above the grain or tall grass, and its intentions are so apparent that the American farmer gave it credit for its good work years before the true value of the once-despised "hen hawk" became known.

This hawk is not beautiful, either in form, color or movement. To me it always seems to have too much sail area for the size of its hull. Its adult color is drab, or bluish gray, but the females and immature males are rusty brown, much like the red-shouldered hawk. However, this hawk can always be distinguished by the *large white patch on the rump*, just above the tail.

One of the first facts about the nesting of hawks that comes to a western farmer boy by personal observation is that the Marsh Hawk nests on the ground, preferably in tall grass, in a nest that is anything but a workmanlike affair. When I found my first nest of this bird—a patch of trampled grass in the head of a slough, with four big, downy nestlings wallowing around upon it—the stock of the Marsh Hawk fell several points in my estimation.

This species ranges all the way from Alaska, Hudson Bay and Ontario to Panama and Cuba. Regarding its value, Dr. Fisher has this to say:

"The Marsh Hawk is unquestionably one of the most beneficial as it is one of our most abundant hawks, and its presence and increase should be encouraged in every way

possible, not only by protecting it by law, but by disseminating a knowledge of the benefits it confers. It is probably the most active and determined foe of meadow mice and ground squirrels, destroying greater numbers of these pests than any other species, and this fact alone should entitle it to protection, even if it destroyed no other injurious animals."

One hundred and twenty-four specimens of this species were examined, and the stomachs revealed the following contents: 57, mice; 27, other mammals; 34, birds; 14, insects; 7, poultry or game birds; 7, reptiles; 2, frogs; 1, unknown; and 8 were empty.

The Swallow-Tailed Kite,[1] or, as the boys of the prairies call it, the Forked-Tailed "Hawk," is in flight the most graceful bird I ever saw on the wing. No matter whether the sky be blue or gray, the snow-white head, neck and body, and glossy black tail and wings are sharply outlined in the heavens, drawing attention as a magnet draws nails. The bird is instantly identified by its long and deeply V-shaped tail, and its striking colors, which divide evenly between themselves the under surface of the wing.

In the golden days of boyhood I saw scores of these birds in Iowa, but never saw one alight and perch, even for a moment. Several times we saw them with snakes in their talons, devouring them as they sailed through the air, and we also saw two or three seizures of prey. But it is the flight of this bird that makes the most lasting impression. In hunting and prospecting it never flies in a straight line, but always in graceful curves, and reverse curves, circles, parabolas, and

[1] *El-a-noi'des for-fi-ca'tus.* Average length, about 23 inches.

spirals, like an expert skater "showing off." Its flight is indeed the poetry of motion in mid-air.

Unfortunately, this beautiful bird is not of wide distribution in the North, for its real home is in the tropics. In

SWALLOW-TAILED KITE.

the United States it migrates in April northward into Iowa, Minnesota, Illinois, southern Michigan and at rare intervals farther east and west to the Carolinas and the plains. So far as known, its food consists exclusively of small reptiles and large insects.

This bird fitly represents the whole group of Kites, of which the *White-Tailed Kite* is the Pacific coast species. The *Mississippi Kite* inhabits the Gulf states, and the *Everglade Kite* reaches our country only in Florida.

THE VULTURE FAMILY

Cathartidae

This Family ranks at the bottom of the list of the birds of prey, because its members are less intelligent, less active and resourceful in obtaining their food, and less able to take care of themselves than the hawks and owls. Although not so highly developed as the hawks, the vultures serve a most useful purpose in the economy of Nature, and exhibit some traits that are really wonderful. The broad-minded student will not turn from these birds with aversion merely because their heads are bare, and they feed on dead food. Their heads are naked for professional reasons.

Two things about vultures are particularly striking. One is the enormous heights to which they soar; the other is their marvellous quickness in discovering the body of a dead animal. Many times, in clear summer weather, I have seen the Common Turkey Vulture[1] sailing and circling on wide-spread but motionless pinions, so high in the heavens that its distance from the earth seemed to be two miles or more.

Clearly these aërial promenades, often continued until the observer is weary of watching them, are taken for pleasure. One great circle succeeds another in a series that seems unending, but all the while the wings are as motionless as if wired in position. On such occasions, even a homely and unlovely "Buzzard" can become an object of admiration, and a reminder of William Tell's Alpine eagle, which—for sentimental reasons only—he "could not shoot."

[1] *Ca-thar'tes au'ra.* Average length, about 29 inches.

"His broad, expanded wings
Lay calm and motionless upon the air,
As if he floated there without their aid,
By the sole act of his unlorded will,
That buoyed him proudly up."

The flight of the Vulture, by which it gains enormous heights without any serious exertion after getting well clear of the earth, is an interesting illustration of what a perfect aëroplane might accomplish if it could flap its wings for a lofty rise, sail with abundant wing power, and be intelligently guided. Beyond doubt, the bird keeps aloft by properly utilizing the lifting power of air currents.

By a strange coincidence, the bird which flies highest and longest, and soars most majestically, is also the bird of lowest tastes on the earth. Although it has strong talons and a strong beak, it kills nothing, and feeds upon dead animals. In every country on earth, vultures are treated as highly useful creatures. In the tropics, where their services really are of great value, they are fully protected by law.

The species found farthest north, with a bright red head and neck, is the Turkey Vulture, and it ranges across the continent from the plains of the Saskatchewan to Patagonia.

The Black Vulture,[1] marked by a head and plumage which are perfectly black, is seldom seen in the northern portions of the United States, but is abundant in the Gulf states, and southward far down into South America. In appearance this bird is most funereal. It is a smaller bird than the turkey vulture, but does not fly so well, and flaps its wings

[1] *Cath-ar-is'ta ur'u-bu.* Average length, about 25 inches.

oftener. Around the cities of the South it is a great domestic economist and labor-saver.

In Bombay, India, the Parsees expose their dead in two great, shallow, open-topped towers, called the Towers of Silence, and the vultures regularly devour them—all except the bones, which fall down into a central pit.

The California Vulture, or California "Condor,"[1] is, among naturalists, the most celebrated bird of this Family, partly because it is our largest bird of prey, and also because of its great rarity. Even in captivity, the adult bird is very large and imposing. On the wing, in the wild, rocky fastnesses of its native mountains, those who have seen it there say it is a grand object, and it is not to be wondered at that its pursuit is quite as exciting as the chase of the bighorn.

Mrs. Florence Merriam Bailey gives the following as the dimensions of this bird: length, 44 to 55 inches; wing-spread, 8½ to nearly 11 feet; weight, 20 to 25 pounds.

This great Vulture breeds in the most inaccessible crags it can find, but of course collectors find it, and I feel that its existence hangs on a very slender thread. This is due to its alarmingly small range, the insignificant number of individuals now living, the openness of the species to attack, and the danger of its extinction by poison. Originally this remarkable bird—the largest North American bird of prey—ranged as far northward as the Columbia River, and southward for an unknown distance. Now its range is reduced to seven counties in southern California.

[1] *Gym'no-gyps californianus.*

Regarding the present status and the future of this bird, I have been greatly disturbed in mind. When a unique and zoologically important species becomes reduced in its geographic range to a small section of a single state, it seems to

THE CALIFORNIA "CONDOR."

me quite time for alarm. For some time I have counted this bird as one of those threatened with early extermination, and as I think with good reason. In view of the swift calamities that now seem able to fall on species like thunderbolts out of clear skies, and to wipe them off the earth even before we know that such a fate is impending, no species of seven-county distribution is safe. Any species that is limited to a few counties

of a single state is liable to be wiped out in five years, by poison, or traps, or lack of food.

In order to obtain the best and also the most conservative information regarding the California Condor, I appealed to the Curator of the Museum of Vertebrate Zoology, of the University of California, Professor Joseph Grinnell, who has furnished me with the following clear, precise and conservative survey of this species. It may fairly be entitled, "The Status of the California Condor in 1912."[1]

"To my knowledge, the California Condor has been definitely observed within the past five years in the following California counties: Los Angeles, Ventura, Santa Barbara, San Luis Obispo, Monterey, Kern and Tulare. In parts of Ventura, Santa Barbara, San Luis Obispo and Kern counties the species is still fairly common, for a large bird, probably equal in numbers to the golden eagle in those regions that are suited to it. By suitable country I mean cattle-raising, mountainous territory, of which there are still vast areas, and which are not likely to be put to any other use for a very long time, if ever, on account of the lack of water.

"While in Kern County last April, I was informed by a reliable man who lives near the Tejon Rancho that he had counted twenty-five Condors in a single day, since January 1 of the present year. These were on the Tejon Rancho, which is an enormous cattle-range covering parts of the Tehachapi and San Emigdio Mountains.

"Our present state law provides complete protection for the Condor and its eggs; and the State Fish and Game Com-

[1] From "Our Vanishing Wild Life," 1913, p. 21.

mission, in granting permits for collectors, always adds the phrase, 'except the California Condor and its eggs.' I know of two special permits having been issued, but neither of these

YOUNG CALIFORNIA VULTURE.

was used; that is, no 'specimens' have been taken since 1908, as far as I am aware.

"In my travels about the state, I have found that practically every one knows that the Condor is protected. Still, there is always the hunting element who do not hesitate to shoot anything alive and out of the ordinary, and a certain percentage of the Condors are doubtless picked off each year by such criminals. It is possible, also, that the mercenary

egg-collector continues to take his annual rents, though if this is done it is kept very quiet.' It is my impression that the present fatalities from all sources are fully balanced by the natural rate of increase.

"There is one factor that has militated against the Condor more than any other one thing: namely, the restriction in its food source. Its forage range formerly included most of the great valleys adjacent to its mountain retreats. But now the valleys are almost entirely devoted to agriculture, and of course far more thickly settled than formerly.

"The mountainous areas where the Condor is making its last stand seem to me likely to remain adapted to the bird's existence for many years—fifty years, if not longer. Of course, this is conditional upon the maintenance and enforcement of the present laws. There is also the enlightenment of public sentiment in regard to the preservation of wild life, which I believe can be depended upon. This is a matter of general education, which is, fortunately, and with no doubt whatever, progressing at a quite perceptible rate.

"Yes; I should say that the Condor has a fair chance to survive, in limited numbers."

The California Condor is one of the only two species of Condor now living, and it is the only one found in North America. As a matter of national pride, and a duty to posterity, the people of the United States can far better afford to lose a million dollars from their national treasury than to allow that bird to become extinct. Its preservation for all coming time is distinctly a white man's burden upon the

Photograph by E. R. Sanborn, N. Y. Zoological Park

THE CONDOR OF THE ANDES.

state of California. By great good fortune the New York Zoological Park has for several years exhibited a pair of these birds, in the open air in summer, but always housed in winter.

Largest of all the Birds of Prey is the CONDOR[1] of the Andes, a bird of lofty home but lowly habits. In the Andes of Chile and Peru, its range is from 9,000 to 16,000 feet above the sea, and it not only feeds upon dead guanacos and vicunias, horses and other domestic animals, but it also ventures to attack living calves and old horses that are almost incapable of defence. Condors are so easily captured alive that the zoological gardens of the world are always well stocked with them.

By nature the Condor is a peace-loving bird, and visitors to the New York Zoological Park have witnessed the strange spectacle of the world's largest bird of prey—the fine adult male shown in the accompanying plate—living in the great Flying Cage in peace and harmony with about eighty flamingoes, herons, egrets, ibises, ducks, other water-birds and various land-birds. Encouraged by the success of the Condor experiment, a large griffon vulture was added to the "happy family," with very satisfactory results.

[1] *Sar-co-rham'pus gry'phus.* Length of male, 48 inches; spread of wings, 8½ to 9½ feet.

CHAPTER XXV

ORDER OF PIGEONS AND DOVES

COLUMBAE

THE Passenger Pigeon[1] is now a bird of history, because it is now to be regarded as a species totally extinct, save for one aged specimen now living in a zoological garden and destined soon to pass away. The men who lived in the Mississippi Valley fifty years ago remember the flocks that flew swiftly over the farms, sometimes fifty and sometimes two hundred or more birds together. It was a wonderful sight to see the perfect mechanical precision with which they kept together, wheeling and circling in as perfect formation as the slats of a Venetian blind.

This vanished bird was much larger than a dove. Its color was bluish above, and reddish brown underneath, and the feathers of its neck had a rich metallic lustre. Its tail was *long and pointed*, and its feet and legs were red. It never was found in the far West, and never will be. The pigeon of the Pacific coast is a totally different species.

In the early days Ohio seemed to be the centre of abundance of this bird, and the accounts that have been written of that period relate how the Pigeons sat so thickly upon the trees that branches were broken by their weight: how they

[1] *Ec-to-pis'tes mi-gra-to'ri-us.* Average length, about 16 inches.

covered the earth when they alighted in the fields to feed, and darkened the sky when they flew.

As usual, that great abundance of wild life provoked great slaughter. Migrating Pigeons were killed by wholesale methods. While breeding they were attacked in their nesting-places, and in an incredibly short time the great flocks vanished. As in the case of the blotting out of the great northern buffalo-herd, in 1884, many persons have wondered, and do still, whether the great flocks of Pigeons have not migrated, and found a permanent home elsewhere. There is not a single fact on which to base either belief or supposition that the Passenger Pigeon exists in Mexico, Central America or elsewhere.

Among naturalists, the blotting out of this interesting species has been a source of sincere regret. As usual, no one thought of protecting it until it was entirely too late.

When the first edition of this Natural History was published (1904) the author permitted himself to believe that there was a chance that the Passenger Pigeon still survived in a wild state, and actually was coming back to our bird fauna. The many circumstantial reports of pigeons observed seemed to justify those conclusions.

Vain hope! That view was entirely too optimistic, and predicated altogether too much on faulty observations, all of which were entirely erroneous. We now place this bird in the totally extinct class, not only because it is extinct in a wild state, but because only one solitary individual, a nineteen-year-old female in the Cincinnati Zoological Gardens, now remains alive. One living specimen, and a few skins, skeletons

and stuffed specimens, are all that remain to show for the uncountable millions of Pigeons that swarmed over the United States only yesterday, as it were!

There is no doubt about where those millions have gone. They went down and out by systematic, wholesale slaughter for the market and the pot, before the shotguns, *clubs* and *nets* of the earliest American pot-hunters. Wherever they nested they were slaughtered.

It is a long and shameful story, but the grisly skeleton of its Michigan chapter can be set forth in a few words. In 1869, from the town of Hartford, Michigan, *three car-loads* of dead Pigeons were shipped to market each day for *forty days*, making a total of 11,880,000 birds. It is recorded that another Michigan town marketed 15,840,000 in two years. (See Mr. W. B. Mershon's book, "The Passenger Pigeon.")

Alexander Wilson, the pioneer American ornithologist, was the man who seriously endeavored to estimate by computations the total number of Passenger Pigeons in one flock that was seen by him. Here is what he has said in his "American Ornithology":

"To form a rough estimate of the daily consumption of one of these immense flocks, let us first attempt to calculate the numbers of that above mentioned, as seen in passing between Frankfort and the Indiana Territory. If we suppose this column to have been one mile in breadth (and I believe it to have been much more) and that it moved at the rate of one mile in a minute, four hours, the time it continued passing, would make its whole length two hundred and forty miles. Again, supposing that each square yard of this moving body

THE PASSENGER PIGEON.

comprehended three pigeons; the square yards in the whole space multiplied by three would give 230,272,000 Pigeons! An almost inconceivable multitude, and yet probably far below the actual amount."

The range of the Passenger Pigeon covered nearly the whole United States from the Atlantic coast westward to the Rocky Mountains. A few bold Pigeons crossed the Rocky Mountains into Oregon, northern California and Washington, but only as "stragglers," few and far between. The wide range of this bird was worthy of a species that existed in millions, and it was persecuted literally all along the line. The greatest slaughter was in Michigan, Ohio and Pennsylvania. In 1848 Massachusetts gravely passed a law protecting the *netters* of Wild Pigeons from foreign interference! There was a fine of $10 for damaging nets, or frightening Pigeons away from them. This was on the theory that the Pigeons were so abundant they could not by any possibility ever become scarce, and that pigeon-slaughter was a legitimate industry.

In 1867 the state of New York found that the Wild Pigeon needed protection, and enacted a law to that effect. The year 1868 was the last year in which great numbers of Passenger Pigeons nested in that state. Eaton, in "The Birds of New York," said that "millions of birds occupied the timber along Bell's Run, near Ceres, Alleghany County, on the Pennsylvania line."

In 1870 Massachusetts gave Pigeons protection except during an "open season," and in 1878 Pennsylvania elected to protect Pigeons on their nesting grounds.

The Passenger Pigeon millions were destroyed so quickly, and so thoroughly *en masse*, that the American people utterly failed to comprehend it, and for forty years obstinately refused to believe that the species had been suddenly wiped off the map of North America. There were years of talk about the great flocks having "taken refuge in South America," or in Mexico, and being still in existence. There were surmises about their having all "gone out to sea," and perished on the briny deep.

A thousand times, at least, Wild Pigeons have been "reported" as having been "seen." These rumors have covered nearly every northern state, the whole of the southwest and California. For years and years we have been patiently writing letters to explain, over and over, that the band-tailed pigeon of the Pacific coast, and the red-billed pigeon of Arizona and the Southwest are neither of them the Passenger Pigeon, and never can be.

There was a long period wherein we believed many of the Pigeon reports that came from the states where the birds once were most numerous; but that period has absolutely passed. During the past five years large cash rewards, aggregating about $5,000, have been offered for the discovery of one nesting pair of genuine Passenger Pigeons. Many persons have claimed this reward (of Professor C. F. Hodge, of Clark University, Worcester, Massachusetts), and many claims have been investigated. The results have disclosed many *mourning doves*, but not one Pigeon. Now we understand that the quest is closed, and hope has been abandoned.

The Passenger Pigeon is a dead species. The last wild specimen (so we believe) that ever will reach the hands of man was taken near Detroit, Michigan, on September 14, 1908, and mounted by C. Campion. That is the one definite, positive record of the past ten years.

The fate of this species should be a lasting lesson to the world at large. Any wild bird or mammal species can be exterminated by commercial interests in twenty years' time, or less.

The Band-Tailed Pigeon,[1] of the Pacific states from British Columbia to Guatemala, and eastward to the Rocky Mountains, yet exists in fair abundance, and it is earnestly hoped that it never will be annihilated without reason or mercy, as was the sad fate of its eastern relative. Wherever found it should be accorded legal protection, without delay.

This fine bird is conspicuously marked by a white collar around its neck, and *a square-ended tail which terminates with a dull-white band from one to two inches wide.* The head and under-parts are purplish pink, fading downward to a lighter color. The back is brownish gray, fading out toward the tail into a dull-blue tone.

This Pigeon subsists upon acorns, seeds and berries, and attracts attention to itself by its noisy flight. Its strange vocal utterances are graphically described by Mrs. Florence Merriam Bailey:

"If you follow the pigeons to their breeding-grounds in some remote canyon you will be struck by the owl-like hoot-

[1] *Co-lum'ba fas-ci-a'ta.* Average length, 15 inches.

ing that fills the place, and you will locate the sound here and there along the sides of the canyon at dead tree-tops, in each of which a solitary male is sunning himself, at intervals

THE BAND-TAILED PIGEON.

puffing out his breast and hooting. The hooting varies considerably. Sometimes it is a calm *whoo'-hoo-hoo*, *whoo'-hoo-hoo*, at others a spirited *hoop-ah-whoo'*, and again a two-syllabled *whoo'-ugh*, made up of a short, hard hoot and a long coo, as if the breath was sharply expelled for the first note and drawn in for the second." ("Handbook," p. 139.)

To me the Mourning Dove[1] has always seemed like a sacred bird; and, although I could have killed thousands, I never took the life of one. When a very small boy at my mother's knee, she related to me the story of the winged messenger which Noah sent out of the ark, over the waste of waters, to look for real estate. She told me that doves were innocent and harmless little birds, and that I must never harm one in the least. Had my good mother issued an injunction covering the whole animal kingdom, I think I would have grown up as harmless to animals as any Hindoo; for her solemn charge regarding doves has always seemed to me as binding as one of the ten commandments.

I mention this in order to point out to mothers the far-reaching extent of their power in behalf of our wild creatures, and the vast influence which they can easily wield in behalf of birds and mammals in sore need of protection. Is it not a good thing to teach all boys that it is morally wrong *(which it is!)* to kill wild creatures without reason, mercy and common sense?

The Mourning Dove received its "given" name from the mournful sound of its call-notes. Its sad-voiced "*Coo, coo, coo,*" suggests moaning, and next to the awful, storm-beaten wail of the screech owl, it is, under certain conditions, the most doleful sound uttered by an American bird. I knew one sensitive woman who was so affected by the daily "mourning" of a neighboring Dove that she begged a sportsman to frighten it away.

Another peculiar fact about this bird is the strange musical

[1] *Ze-na-i-du'ra ma-crou'ra.* Average length, 12 inches.

note that is sounded by the vibration of its wings. As the bird springs from the ground in flight, or wings its way overhead, the pulsations of its wings give forth a ringing, metallic sound, like the twanging of a tight wire.

This Dove loves country roads, more than any other bird, and to those who love beautiful things, its exquisitely moulded form and immaculate plumage is always a pleasing touch of Nature. One might as well try to describe in words the colors in a fire opal as those of this bird. There is pink iridescence, and brownish, and grayish, and blackish, and other shades too numerous to mention, but the combination baffles description.

This Dove breeds throughout the United States from the international boundary to the Gulf, and migrates as far south as Panama. In California it is now counted as a "game bird," and killed by sportsmen, and in the South also it is killed by the negroes for food. A great "game bird" this, truly! A genuine sportsman must be very hard pressed for gun victims when he can seriously call this tamest of all birds "game." And can any farmer in his senses *afford the expense* of having Doves shot on his farm, or in his neighborhood? Let us see.

When the Biological Survey of the Department of Agriculture took up the case of the Mourning Dove, and examined the stomachs of 237 specimens, the summary of results proved that as a weed-destroyer this bird is one of the most valuable in North America. Weed-seeds constitute 64 per cent of its food, all the year round, with little monthly variations. In order to arrive at an exact determination, the seeds in three stomachs were carefully identified and counted. One contained the following:

MOURNING DOVE.

Orange hawkweed (*Hieracium aurantiacum*)	4,820 seeds.
Slender paspalum (*Paspalum setaceum*)	2,600 "
Hoary vervain (*Verbena stricta*)	950 "
Panicum	620 "
Carolina cranesbill (*Geranium carolinianum*)	120 "
Yellow wood-sorrel (*Oxalis stricta*)	50 "
Miscellaneous weeds	40 "
	9,200

The second specimen of the three contained 6,400 seeds of the farmers' ancient and persistent enemy, fox-tail (*Chactocloa*), while the third turned out 7,500 seeds of the yellow wood-sorrel. The grand total of weed-seeds for those three Doves was 23,100! And this for only one day's supply. Assuming that those three Doves had been killed as "game" by some "sportsman (!)," previous to their meal, and those seeds had produced 23,100 weeds, how much would it have cost in labor at $1.50 per day to destroy them?

Besides the 64 per cent of weed-seeds in the 237 stomachs, there was found 32 per cent of grain, but of this three-fourths was waste grain, gleaned in the fields after harvest.

Whoever does aught for the protection of doves, does well; and a word to the wise is sufficient.

CHAPTER XXVI

ORDER OF UPLAND GAME BIRDS

GALLINAE

IT is natural that a country possessing the wide diversity of uplands that exists in the United States should possess a great variety of ground-dwelling birds. In response to the inviting fields and forests, plains and mountains—cold and warm, wet and dry—the birds of the Order Gallinae have greatly multiplied, both in number and in species.

It is no wonder that men and boys like to hunt upland game birds; *and when the conditions are properly observed*, it is right that they should do so. The natural death of a game bird or quadruped is by shot or bullet, from the gun of a true hunter, who hunts only at the proper time, in a fair manner, and kills sparingly. Wherever game birds are most plentiful, each hunter is in honor bound to kill *only a small number*, and give others a chance.

If you are a boy, or man, don't be a "game-hog!" Shoot like a gentleman, or don't shoot at all. If any species becomes so rare that it is threatened with extinction, *stop killing it*, and take measures for its complete protection until it has had time to recover. Above all, *never* engage in a "side-hunt," which is a wholesale slaughter of wild creatures "for points"; and never tolerate one in your neighborhood. Side-

hunting should be prevented, at the muzzle of breech-loaders, if necessary.

Some of the most interesting hunting experiences ever recorded have been in hunting game birds with the camera. If space were available, it would be a pleasure to record here the names of some of those who have made beautiful pictures of ruffed grouse, pinnated grouse, woodcock, ptarmigan and many other species. A fine bird photograph is a joy forever, but a bagful of dead birds disappears in an hour.

The table below affords a bird's-eye view of this Order as it exists north of Mexico:

ORDER GALLINAE

NORTH OF MEXICO

FAMILIES	GROUPS	EXAMPLES	
GROUSE FAMILY *Tet-ra-on'i-dae*	*Quail*	Virginia Quail, or Bob-White.	
		California Mountain Quail.	
		California Valley Quail.	
		Mearns' Quail.	
		Scaled Quail.	
	Grouse	Ruffed Grouse.	
		Canada Grouse.	
		Pinnated Grouse.	
		Sharp-Tailed Grouse.	
		Sage Grouse.	
	Ptarmigan	Willow Ptarmigan.	
PHEASANT FAMILY *Phas-i-an'i-dae*	*Turkeys*	Wild Turkey.	
	Pheasants All of the Old World only.	Ring-Necked Pheasant.	Introduced.
		Golden Pheasant.	
		Silver Pheasant.	

As the preceding diagram shows, there are no true pheasants in America save those that have been introduced from

China and Japan. All the birds to which that name correctly applies inhabit the Old World.

THE GROUSE FAMILY

Tetraonidae

Our dear old friend the COMMON QUAIL is now called BOB-WHITE[1] in all the modern bird-books, but to about fifty million Americans it is yet, and ever will be, *the* Quail. It is our longest-known and most widely known American game bird, and it is almost wholly a United States bird. It is at home from Maine and Florida to Texas, the western border of Oklahoma and South Dakota. In very many eastern localities, however, it has been almost exterminated by excessive shooting. Unfortunately, no northern state permits any of its few remaining Quail to be trapped and exported, and as a rule southern Quail cannot withstand the rigors of the northern winter. In addition to this, there has been much "Quail disease" among the southern flocks, and their importation is hazardous. In 1913 the state of New York granted its Quail a five-year close season, excepting on Long Island.

The call of the Bob-White is one of the most cheerful sounds in nature, and for carrying qualities it is far-reaching. From the heart of a hazel thicket one hears his loud, shrill call, saying "CLERK-*it!* CLERK-*it!* CLERK-*it!*" until everything rings again. On the hurricane deck of a high stump, or the top rail of a fence, he poises himself, points his bill at the sky, swells out his white throat and whistles

[1] *Co-li'nus virginianus.* Average length, 10 inches.

long and loud, "Bob! BOB! WHI-EET!" But the feathered rascal knows very well when the close season is on; and when the "law is off" he sings very small.

That many men enjoy quail-shooting is no cause for wonder or reproach. The birds lie close in the edge of the brush until the dogs are ready to tread upon them, when "*Burr-r-r-r!*" the covey explodes in the air like a bomb, the gray-and-brown fragments fly in half a dozen directions, and the young sportsman is so "rattled" he is almost sure to miss. A well-scared Quail is no easy mark.

Quail are rapid breeders, and in protected localities they increase rapidly. A good bird-law in Kansas once resulted in bringing back the vanished flocks, to a surprising extent, but they were soon shot out again. Unfortunately, it is not possible to breed Quail in large numbers in confinement, even with a quarter-section of land for the experiment. Every northern state that has not already done so should at once give its remnant of Quail a five-year close season—*before it is too late!*

In view of the enormously increased cost of living, partly due to the increase in the cost of all farm products, the case of the Bob-White becomes of practical interest to every consumer. Beside the market-basket and the dinner-pail the merely academic topics of natural history become of secondary importance. Consider this bird and the weeds of the farm.

To kill weeds costs money—hard cash that the farmer earns by toil. Does the farmer put forth strenuous efforts to protect the bird of all birds that does most to help him keep down the weeds? Far from it! All the *average* farmer thinks

about the Quail is of killing it, for a few ounces of meat on the table. Because of its few pitiful mouthfuls of flesh, two million gunners and four thousand lawmakers think of it *only as a*

BOB-WHITE.

bird to be shot, and eaten! As a result, throughout the greater portion of its former range, the Bob-White is surely and certainly on the verge of total extinction; and now many state game commissions are vainly trying to supplant it by the Hungarian partridge—because the native Quail "can't live." And sportsmen gravely discuss the "bag limit" and "enforce-

ment of the bag limit law" as a means of bringing back this almost vanished species!

It is fairly beyond question that of all birds that influence the fortunes of the farmers and fruit-growers of North America, the Bob-White is one of the most valuable. It stays on the farm all the year round. When insects are most numerous and busy, Bob-White devotes to them his entire time. He cheerfully fights them, from sixteen to eighteen hours per day. When the insects are gone, he turns his attention to the weeds that are striving to seed down the fields for another year. Occasionally he gets a few grains of wheat that have been left on the ground by the reapers; but he does *no damage*. In California, where the valley quail once were very numerous, they sometimes consumed altogether too much wheat for the good of the farmers; but outside of California I believe such occurrences are unknown.

Let us glance over the Quail's food habits:

One hundred and twenty-nine different weeds have been found to contribute to the Quail's bill of fare. Crops and stomachs have been found crowded with rag-weed seeds, to the number of one thousand, while others had eaten as many seeds of crab-grass. A bird shot at Pine Brook, New Jersey, in October, 1902, had eaten five thousand seeds of green fox-tail grass, and one killed on Christmas Day at Kinsale, Virginia, had taken about ten thousand seeds of the pig-weed. (Elizabeth A. Reed.) In Bulletin No. 21, Biological Survey, it is calculated that if in Virginia and North Carolina there are four Quail to every square mile, and each bird consumes one ounce of seed per day, the total destruction of weed-seeds

from September 1 to April 30 in those states alone will be 1,341 tons.

In 1910 Mrs. Margaret Morse Nice, of Clark University, Worcester, Massachusetts, finished and contributed to the *Journal of Economic Entomology* (Vol. III, No. 3) a masterful investigation of "The Food of the Bob-White." It should be in every library in this land. Mrs. Nice publishes the entire list of 129 species of weed-seeds consumed by the Quail—and it looks like a rogue's gallery. Here is an astounding record, which proves once more that truth is stranger than fiction:

NUMBER OF SEEDS EATEN BY A BOB-WHITE IN ONE DAY

Barnyard grass	2,500	Milkweed	770
Beggar ticks	1,400	Peppergrass	2,400
Black mustard	2,500	Pigweed	12,000
Burdock	600	Plantain	12,500
Crab grass	2,000	Rabbitsfoot clover	30,000
Curled dock	4,175	Round-headed bush clover	1,800
Dodder	1,560	Smartweed	2,250
Evening primrose	10,000	White vervain	18,750
Lamb's quarter	15,000	Water smartweed	2,000

NOTABLY BAD INSECTS EATEN BY THE BOB-WHITE
(PROFESSOR JUDD AND MRS. NICE)

Colorado potato beetle.
Cucumber beetle.
Chinch bug.
Bean-leaf beetle.
Wireworm.
May beetle.
Corn billbug.
Imbricated-snout beetle.
Plant lice.
Cabbage butterfly.
Mosquito.
Squash beetle.
Clover-leaf beetle.
Cotton boll-weevil.
Cotton boll-worm.
Striped garden caterpillar.
Cut-worms.
Grasshoppers.
Corn-louse ants.
Rocky Mountain locust.
Codling moth.
Canker worm.
Hessian fly.
Stable fly.

SUMMARY OF THE QUAIL'S INSECT FOOD

Orthoptera—Grasshoppers and locusts	13	species
Hemiptera—Bugs	24	"
Homoptera—Leaf-hoppers and plant lice	6	"
Lepidoptera—Moths, caterpillars, cut-worms, etc.	19	"
Diptera—Flies	8	"
Coleoptera—Beetles	61	"
Hymenoptera—Ants, wasps, slugs	8	"
Other insects	6	"
Total	145	"

A Few Sample Meals of Insects.—The following are records of single individual meals of the Bob-White:

Of grasshoppers, 84; chinch bugs, 100; squash bugs, 12; army worm, 12; cut-worm, 12; mosquitoes, 568 in three hours; cotton boll-weevil, 47; flies, 1,350; rose slugs, 1,286. Miscellaneous insects consumed by a laying-hen Quail, 1,532, of which 1,000 were grasshoppers; total weight of the lot, 24.6 grams.

"F. M. Howard, of Beeville, Texas, wrote to the U. S. Bureau of Entomology, that the Bob-Whites shot in his vicinity had their crops filled with the weevils. Another farmer reported his cotton-fields full of Quail, and an entire absence of weevils." (Texas and Georgia papers please copy.)

Surely it is unnecessary to point out the logic of the facts recorded above.

The flesh of this bird is a great table delicacy—provided it has not been kept in cold storage. A cold-storage Quail is as good to the taste as a chunk of pressed sawdust, but no better; and as human food an eminent New York physician, Dr. Robert T. Morris, pronounces it unwholesome and dangerous. In flavor, cold-storage Quail is far inferior to fresh

chicken or turkey. In a court of law, a cooked Quail can easily be identified from squab, reed-bird, "rail-bird" and many others by the fact that the meat on its breast is *white*, while all the others wear dark meat.

The California Mountain Quail[1] is a bird of most pleasing appearance, which inhabits California, Oregon and Washington. Wherever protected it is spreading rapidly in the settled portions of the Northwest. It loves moist regions wherein the rainfall is abundant. This is the bird with a black throat, a white crescent running down from the eye, two rows of white markings on each side and a long, *drooping* plume on its head running back on the same curve as the forehead. This bird goes in small flocks, of ten to twenty, hides well and is not easily flushed without a dog.

CALIFORNIA MOUNTAIN QUAIL.

The Valley Quail[2] is the bird of the Pacific coast which has the very jaunty, *erect* black plume, rising from the top of its head and gracefully curving forward. Its color markings are rich and beautiful, but not gaudy, and in form as well as color it is very handsome. In fact, it is the most beautiful of all our small upland game birds. It inhabits

[1] *Or-e-or'tyx pic'tus.* Average length, 11 inches.
[2] *Lo-phor'tyx californicus.* Average length, 9 inches.

Oregon, Nevada, the whole of California and the Lower California peninsula, and in some places ascends the mountains to 9,000 feet. It has been acclimatized in Utah, and there are many other localities in which it might well be introduced.

This beautiful Quail is the most widely distributed and frequently seen game bird in California, not only in the moun-

CALIFORNIA VALLEY QUAIL.

tains, but also in the cultivated valleys, everywhere, and even in Golden Gate Park, San Francisco. It breeds readily in confinement in the New York Zoological Park, and when safe from rats is not difficult to keep.

THE MEARNS' QUAIL,[1] of Mexico, western Texas and southern New Mexico and Arizona, must be mentioned be-

[1] *Cyr-to'nyx mon-te-zu'mae mearns'i.* Average length, 8.50 inches.

cause it is too odd and striking in appearance to be ignored. It may be known by the numerous large white spots on the sides of its body just below the wings, and its harlequin head of black-and-white bars and collars. It is of great interest to Americans residing in Mexico, and many attempts have been made to acclimatize it in captivity in the United States. I once had in my possession two of these birds whose white spots had been artificially changed by some enterprising Mexican to a beautiful golden-yellow color. Until the trick was discovered, the birds were quite a puzzle, for the fact that they had been dyed was not proven until they moulted.

The Ruffed Grouse[1] is the dandy of American game birds. In various places it is called by various names, some of which are mischievously confusing. By many persons it is called a "Pheasant," and by others a "Partridge"; but both of these names are entirely incorrect, and when applied to this bird create confusion. Often it is impossible to converse understandingly about this bird without first defining boundaries, and coming to an agreement regarding the names "Pheasant" and "Partridge." Now that a real pheasant (the ring-necked) has been introduced from China into many portions of the United States, it is all the more imperative that the Ruffed Grouse should be called by that name *and no other!* It is called "Ruffed" because of the ruff of feathers that it wears just in front of its shoulders, and under the name "Redruff" this bird has been most charmingly introduced by Mr. Ernest Thompson Seton to many thousand readers who never had known it previously.

[1] *Bo-na'sa um-bel'lus.* Average length, 16 inches.

This Grouse is in every respect a forest bird. Its ideal home is mixed forest of hardwood and coniferous trees, with the white-tailed deer and gray squirrel for company. Its home extends from Massachusetts and northern New York to northern Georgia, and westward very sparingly beyond the Mississippi to the Dakotas. Besides being beautiful, it is a bird of interesting habits, and its flesh is entirely too fine for its own good. In size it is smaller than the pinnated grouse, or prairie chicken, but in intelligence it is second to no other grouse living.

EASTERN RUFFED GROUSE.

The prevailing color of the Ruffed Grouse is rusty brown, but the mottlings of black, gray and white defy intelligent description. Open or shut, the tail is a dream—cross-barred, banded and mottled most exquisitely. It is no wonder that the male bird is fond of strutting, with spread tail; but besides this it has a still more effective means of attracting the female. It perches on a log, secures a good grip with its feet, then *beats the air* with its wings until you hear at the end of the performance a long, quivering resonance disturbing the solitude, like beating upon a Hindoo tom-tom.

The beats start slowly, but quickly increase in rapidity to the end, thus: "*Dum!-dum!-dum!-dum-dum-dumdumdum-dum.*" The bird does not beat the log, and it does not beat

its own sides. Thoreau declared that its wings strike together behind its back! This "drumming" of the Ruffed Grouse is heard oftenest in spring, and is a signal to the female; but it is also heard occasionally in summer and autumn.

This grouse is a strong flier, and gets up before the hunter with such a tremendous "*burr-r-r-r*" of wings, and goes off so explosively, that it takes a quick eye and hand to bring it down. It can dash off through timber like a feathered rocket, dodging trees and branches, and zigzagging in all directions leading away from danger, with a degree of speed and certainty that is really marvellous. No wonder the young hunter who kills one, fairly and squarely, feels proud of his skill, and hastens away to have the trophy mounted for his den.

Unfortunately, in most eastern states, where the Ruffed Grouse should hold its own for a hundred years, this bird is doomed to complete extinction—*unless its sale for the table is immediately and effectually stopped!* So long as it is lawful to sell it, pot-hunters will shoot it, *and snare it*, in season and out of season, as "food" for the already over-fed patrons of fashionable hotels and restaurants of the large cities. As food for the hungry, this beautiful bird is not needed in the least. As a means of inducing thousands of brain-weary men to take healthful exercise in the woods, it will serve a highly useful and important purpose—if not meanly and foolishly exterminated.

In New York, Massachusetts, Pennsylvania and seventeen other states the sale of game is now sternly forbidden by state laws, and those laws are mostly well enforced.

The following subspecies, closely related to the typical Ruffed Grouse, are found in North America:

The Oregon, or *Sabine's Grouse*, is found on the mountains of the Pacific coast, west of the Coast Range, from northern British Columbia to California. This species possesses rich red plumage, and is quite beautiful.

The Canadian Ruffed Grouse belongs to Canada and Maine, but in the Northwest it ranges south of the international boundary. The *Gray Ruffed Grouse* inhabits the Rocky Mountains from the Yukon to Colorado.

THE DUSKY GROUSE[1] is a conspicuous type which inhabits the Rocky Mountains from Idaho and Montana to Arizona. Its other names are BLUE, PINE, and GRAY GROUSE, and also PINE-HEN. I first saw it alive in the Shoshone Mountains, while skirting a very steep mountain side in search of mountain sheep. The stunted pines that struggle with the slide-rock for existence were not more than thirty feet high, but in them perched, dangerously near the ground, this handsome slaty-blue Grouse. Its nearest neighbors were the mountain sheep, elk, magpie, Clarke's nutcracker, and golden eagle.

This fine bird ranges up to timber-line, but loves rough mountain sides that are partially covered with pines, cedars and firs. It usually lives alone, but sometimes forms very small flocks. The crop of a specimen which I shot was stuffed full of fresh, green pine needles, some of them two inches long. At that time, however, the snow was a foot deep.

[1] *Den-drag'a-pus ob-scu'rus*. Average length of male, about 21 inches; female, 18 inches.

This bird is recognizable by the broad white band across the end of its tail, and its slaty-blue color. From Alaska to California is found a subspecies, very much like the preceding, called the *Sooty Grouse*. From western Montana to the Coast Range in Oregon and Washington, and northward to Alaska, is found the *Franklin Grouse*, known very generally as the "*Fool Hen*," because it trusts too much to man's humanity, and often finds itself a victim of misplaced confidence. This is one of the last American birds to learn that man is a very dangerous animal, and often devoid both of mercy and of appreciation of the beautiful in bird life.

THE CANADA GROUSE,[1] also called the SPRUCE GROUSE and BLACK "PARTRIDGE," is, as its most acceptable name implies, *the* grouse of Canada and the Northwest. It has the widest range of any American member of the Grouse Family—from the Alaskan Peninsula southeastward to northern Minnesota, Michigan, New York and New England. It inhabits the evergreen forests of that vast region, usually in very small flocks. It does not really migrate, but by reason of seasonal changes which affect its food supply it often shifts from one locality to another. (D. G. Elliot.)

In many localities it is known as the "*Fool Hen*"—a name which is applied in various places to several other species. Man is so conscious of his own insensate destructiveness, and so accustomed to seeing all wild creatures fly in terror before his baneful presence, he naturally feels that any bird which trusts its life to his tender mercies, and does not live in constant fear of him, must indeed be a feathered fool! For some

[1] *Ca-nach'i-tes canadensis can-a'ce.* Length, about 14 inches.

strange reason several members of the Grouse Family are surprisingly slow to comprehend man's true nature and acquire the flight instinct, which most other species learn by experience in a few generations of contact with the Universal Killer.

CANADA GROUSE.

The male Canada Grouse is readily recognized by its black breast and throat, and black tail, which handsomely set off the barred gray back and sides.

THE PINNATED GROUSE, or PRAIRIE CHICKEN,[1] lives chiefly in the memories of those who from 1860 to 1875 were "western men," or boys. At that time Illinois, Wisconsin and Iowa, and the states adjoining, were the "West." Railroads were few, all guns were muzzle-loaders, and the game-dealers of Chicago were not stretching out their deadly tentacles, like so many long-armed octopi, to suck the last drop of wild-game blood from prairie and forest. The "market-

[1] *Tym-pa-nu'chus americanus.* Average length of male, 18 inches.

shooter" was a species of game-butcher then unknown, and the beautiful fertile prairies and prairie-farms of Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas and Nebraska were well stocked with Prairie Chickens.

In spring they courted openly, and even proudly. The cocks strutted, and inflated the bare, salmon-yellow air-sacs on the sides of their necks, bowed low, and "*Boo-hoo-hooed!*" until the sound rolled over the bare earth in great waves. Then they scattered, to nest and rear their young. In summer they hid themselves closely; and no self-respecting farmer dreamed of such a low act as killing one, or meddling with a nest.

In the fall, after the harvesting, and just before the corn-cutting and corn-husking, the young broods were ready to fly, and the flocks began to gather. They first ranged through the wheat and oat stubble, gleaning; and the sport they furnished there—dear me! Those were the golden days of life on a prairie farm. The flocks of Pinnated Grouse and quail were the rightful heritage of the boys and men who toiled in the fields through the raw cold of early spring, and the long, flaming days of July and August. If the farmers only had been far-sighted, and diligent in protecting for their all-too-scanty recreation, and for their own tables, *the game that was theirs*, they might have had Prairie Chickens to hunt for a century.

But the game-devouring octopi began to reach out, from Water Street, Chicago, and from New York and Boston. An army of men began to "shoot for the market," and the Pinnated Grouse and quail began to "go east," by the barrel. Some markets were so glutted, time after time, that unnum-

PINNATED GROUSE, OR PRAIRIE CHICKEN.

bered barrels of dead birds spoiled. That was before the days of cold storage.

The efforts that were made to stop that miserable business were feeble to the point of imbecility; and absolutely nothing permanent was accomplished. Had farmers generally stopped all shooting on their farms, as every farmer should, the war on those birds would have stopped also; but the barn was not locked until after the horse had been stolen. A species destroyed is rarely regained.

To-day the Prairie Chicken is to be numbered with the buffalo and passenger pigeon. It is so nearly extinct that only a few flocks remain, the most of which are in northwestern Minnesota, the Dakotas and Nebraska. If hunting them with dogs continues, five years hence the species will probably be quite extinct.

It is useless to describe this bird. The chances are that no reader of this book ever will see one outside of a museum, or a large zoological garden.[1] The great flocks of from one to three hundred that from 1860 to 1875 were seen in winter in the Iowa corn-fields, are gone forever. Even as late as 1874 many birds were killed every winter by flying against the telegraph wires along the railways.

The Heath Hen, or Eastern Prairie Chicken,[2] was the first bird species of the United States to be completely exterminated everywhere save in one small locality. I doubt if there are more than one thousand Americans now living to whom this bird is anything more than an empty name.

[1] During the first four years of its existence, the New York Zoological Park was able to secure only four living specimens.

[2] *Tym-pa-nu'chus cu'pi-do.*

Originally this bird was to the eastern states what the pinnated grouse was to the middle West. It inhabited New Jersey, Pennsylvania, New York, Connecticut, Rhode Island, Massachusetts, and I know not how many more states. But the shotguns were too much for it. Being a game bird of fine flavor, good size and open-country habits, it was sought and shot, regardless of seasons.

In 1785 New York accorded a close season from April 1 to October 1. New Jersey extended partial protection in 1820, Massachusetts in 1831, and Rhode Island in 1846. In 1866 New Jersey became alarmed about impending extinction, and gave the vanishing Heath Hen a five-year close season. In 1862 New York, in still greater alarm, gave a ten-year close season, hoping to bring back the vanished flocks. Five years later, in still greater alarm, New York passed a new ten-year close-season law, and in 1870 Massachusetts rushed to the front with a law for six years of unbroken protection.

Those efforts now teach a valuable lesson, which is this: *In the destruction of a wild species a point of disappearance is finally reached beyond which every species is doomed, and cannot be restored.* That was reached with the Heath Hen, everywhere save on the island of Martha's Vineyard, Massachusetts, where by great efforts a colony of about 200 birds has been saved, even down to 1914.

I fear that already in several states various species of game birds, such as the eastern bob-white, have been shot down to a point so low that it may be impossible for any length of close seasons to bring back the vanished flocks.

The Prairie Sharp-Tailed Grouse[1] inhabits the Great Plains, from the states bordering the Mississippi to the Rocky Mountains. It is the plains counterpart of the pinnated grouse, and like it, is rapidly disappearing before the settlements that are fast filling up its home. The neck of the male lacks the side tuft of long, pointed feathers and the naked air-sac so conspicuous on the male pinnated grouse.

To-day this bird is seldom seen in the open sage-brush plains and bad lands of Montana and Wyoming, but is occasionally found in or near the foot-hills of the Rocky and Big-Horn Mountains. When flushed, it makes the mistake of its life in alighting in the low, isolated cottonwood trees that straggle along the creeks, for when thus perched it takes a strong man to resist the temptation to cut off its head with a rifle-ball—or try to do so. This bird will fly out of the most impregnable cover, and perch aloft to be shot at in a manner indicating a total absence of the most ordinary instinct of self-preservation.

The Sage Grouse, or "Cock-of-the-Plains,"[2] is a superb bird—big, handsome and showy. It is one of the very few creatures which can with pleasure and benefit eat the leaves of the common sage-brush, and subsist upon that food indefinitely. Naturally, however, this diet often imparts to the flesh of the bird an excess of sage flavor which renders it quite unpalatable. Unfortunately, on this fact alone the Sage Grouse cannot base a hope of a better fate than that of its more edible relatives in the Grouse Family.

[1] *Ped-i-oe-ce'tes phas-i-an-el'lus cam-pes'tris.* Average length, about 17 inches.
[2] *Cen-tro-cer'cus u-ro-phas-i-an'us.* Length of male, 27 inches; female, 22 inches.

Of the really conspicuous members of the Plains fauna—buffalo, antelope, elk, coyote, gray wolf, swift fox, jack "rabbit," prairie-"dog," and Sage Grouse—all have vanished from frequent sight save the last "dog," and some have wholly disappeared. In riding in October, 1901, from Miles City to the Missouri River and back, about 250 miles all told, we saw only three coyotes, one gray wolf, and four prairie hares. Cotton-tail rabbits abounded in the bad lands, and we saw about six flocks of Sage Grouse—a very small number for so much territory.

One of those flocks, however, was a sight to be remembered. In the valley of the Little Dry it spread out in open order, on a level flat that was carpeted with short, gray buffalo-grass, and dotted here and there with low clumps of sage-brush. Halting the outfit wagon I slowly rode forward until within thirty feet of the vanguard of the flock. There were forty-six birds, and all were on dress parade. They stood proudly erect, headed across the trail, marched forward in a slow and stately manner, and every weather eye was kept on me. The majority were big, long-tailed cocks. At last the parade terminated in the flight of the birds nearest me, gradually followed by all the others.

In size, the Sage Grouse is the largest member of the Grouse Family in America—next, in fact, to the magnificent blackcock of Europe. When a whole flock suddenly rises out of the sage-brush and takes wing, it is an event to remember. The rush and beat of wings makes a startling noise, and the size of the bird is also highly impressive. This grouse is so large that, as it flies away, you see its body rock violently

from side to side, and note the effort of the wings to carry the bird, and maintain a true balance.

The male has an air-sac on each side of its neck, which it inflates in the courting season, when it struts to attract the

SAGE GROUSE.

attention of the females. Recently Mr. Frank Bond has observed that the male also rubs its breast along the ground, as a part of its strutting performance, which accounts for the mysteriously worn condition of the breast feathers.

It is no more necessary to describe a Sage Grouse than an

elephant. Its large size, and its extremely long and pointed tail proclaim its identity anywhere. According to Mrs. Bailey, it ranges "from Assiniboia and British Columbia to Utah, Nevada and California, from the Sierra Nevadas and Cascades east to the Black Hills, Nebraska and Colorado." I heartily wish that every one who reads these notes may some day have the pleasure of seeing at close range this glorious bird in its ideal home—on a sage-brush flat in the land of buttes, where the world is big and free, and full of sunshine.

But I am sure this wish will fall far short of realization. By the sportsmen, gunners and pot-hunters of the far West, this fine bird has been shot and shot, until now it exists only in shreds and patches. Every locality still containing birds is surrounded, and no one who shoots seems to care about saving that truly grand bird. In a very short time the people of the West will awake and find that the great Sage Grouse is totally extinct.

The Ptarmigans (pronounced tar'mi-gans) form a sharply distinguished group of the Grouse Family, with which, in view of the different species we possess in Alaska, and also nearer home, every American should become acquainted. The most striking and peculiar character about these birds is that at the approach of winter they turn snow white. They prefer to nest on the tops of rugged mountains, above timber-line, and in Alaska are at home either on the lofty snow-fields of the mountains or the desolate barrens.

There are four well-defined species, and six varieties. The only species which is at home in the United States is the

Summer plumage. Winter plumage.

WILLOW PTARMIGAN.

Drawn from photographs made in Alaska by Dall DeWeese.

White-Tailed Ptarmigan[1]—in Colorado sometimes called the "White Quail"—which lives in the Rocky Mountains from the Liard River, British Columbia, to New Mexico. It is said that another species (the *Willow*) does occasionally wander down into northern New England. The majority of the species are found in Alaska, but the *Rock Ptarmigan* covers nearly the whole of Arctic America from Alaska to Labrador and Greenland. Two of its subspecies inhabit Newfoundland.

The Willow Ptarmigan[2] may well be chosen as the typical representative of the whole group, for its distribution covers the arctic lands entirely around the pole. When De Long and his party fought starvation at the mouth of the Lena River, their last food was one of these birds, shot with a rifle by Alexy, the Eskimo. In northern Greenland and Grinnell Land Peary and Greely ate it, and in the Kenai Peninsula flocks of it were photographed by Dall DeWeese and others. In 1913 two specimens were taken at Midvale, Montana.

This bird is almost constantly busy in changing its clothes. In the spring it goes by slow degrees from winter white to chestnut brown, barred with black. By July the dark plumage of midsummer is fully developed; but not for long. By the first of September, the trouble begins once more, and feather by feather the plumage gradually changes to snowy white. In winter the legs and feet of Ptarmigans generally are heavily clothed with feathers, and often only the ends of the toes are visible.

[1] *La-go'pus leu-cu'rus.* Length, about 12 inches.
[2] *La-go'pus lagopus.* Length, about 14 inches.

As might be expected, this bird and its relatives often constitute an important source of food for the Indians and Eskimos of the arctic regions.

Unfortunately, in every mining district of the far Northwest the Ptarmigan is relentlessly pursued as food for the camps. A photograph taken in 1913 at (or near) White Horse, Yukon, shows a solid wall of Ptarmigan which was said to contain about 3,000 birds.

THE PHEASANT FAMILY

Phasianidae

The Pheasant Family was originally represented on this continent only by the wild turkeys; but during recent years certain foreign species have been successfully introduced, and are now becoming so numerous as to require notice.

The Ring-Necked Pheasant[1] has been introduced from China, and acclimatized in Washington, Oregon, California, British Columbia and elsewhere with pronounced success. In many localities it has become so abundant that now it is shot by sportsmen as upland game birds once were killed in New York state. From Portland, Oregon, to Vancouver the taxidermists are annually called upon to mount scores of these birds, because they are so beautiful that many of the sportsmen who shoot them cannot consent to see their skins destroyed.

Following the examples of the Pacific states, New York, Massachusetts, Pennsylvania, New Jersey and several other states both east and west have entered seriously upon the

[1] *Phas-i-an'us tor-quat'us.*

business of breeding, rearing and introducing this valuable bird at state expense.

The Silver Pheasant, and the very beautiful Golden Pheasant, both natives of China, have also been acclimatized in Washington, Oregon and British Columbia. In view of

WILD TURKEY, FROM VIRGINIA.

the strong and hardy natures of both these birds, there should be little difficulty in introducing them in any well-wooded farming region east of the Mississippi and south of the fortieth parallel.

The Wild Turkey[1] once inhabited nearly one-half of the United States; and, considering the great size of the bird, the earnestness of our efforts to exterminate it, and the very little that has been done toward its protection, its survival to-day is cause for wonder. It is yet found in a few heavily timbered regions in the East and South such as Florida,

[1] *Me-le-a'gris gal-lo-pa'vo.* Length of large male, about 46 inches; weight, 28 pounds.

the Virginias, Pennsylvania and a few more of the southern states. It is doubtful if even one flock exists in the North anywhere west of Pennsylvania. In Oklahoma and Texas it still lives, but the gunners of the cattle-ranches are fast killing off the few very small flocks that remain.

The Wild Turkey is the king of upland game birds. It has been given to but a few hunters to seek this bird in its native forests, witness its splendid flight, and afterward shoulder a giant gobbler weighing from twenty-five to thirty pounds for a ten-mile carry. He who has done this, however, will thereafter rank this bird as second to none on earth. In the United States only one species exists, but three geographic races have been described. The wild bird so closely resembles the domestic turkey that almost the only difference observable is the white upper tail coverts of the tame bird.

The Ocellated Turkey,[1] of Yucatan, British Honduras and Guatemala is a bird of more brilliant plumage but smaller size than our northern species. Its name refers to the beautiful eye-spots of blue, green and purple which adorn the tail feathers. The prevailing color of the body plumage is a rich metallic green, exhibiting the brilliant iridescence and burnished-bronze effects so strongly displayed in most turkeys in full plumage. On account of its great beauty, several attempts have been made to establish this species in zoological gardens, and at last (1914) it has been successfully established in the New York Zoological Park. The species is very difficult to keep alive in captivity.

[1] *Me-le-a'gris oc-el-la'ta.*

CHAPTER XXVII

ORDER OF SHORE BIRDS

LIMICOLAE

As the name of the Order indicates, these birds live on the ocean and lake beaches, and the banks of rivers, ponds and pools, where they find many kinds of queer things to feed upon. On the boundary line betwixt sea and land they find many insects, shell-fish, crustaceans and worms. The turnstones make a business of turning over pebbles and small stones, in order to capture the worms and insects that take shelter under them.

Let it not be thought, however, that all shore birds live on shores. Far from it. Before the days of general bird slaughter and extermination, there were plovers and curlews and dowitchers and other species that were at home on the rolling prairies of Iowa, Illinois and Kansas, miles and miles from the nearest pond, lake or river. Even to the eyes of a farmer boy knowing naught of natural-history books, they seemed strangely out of place; for their long, slender legs suggested water and wading. In those days we wondered what they found on those dry prairies to feed upon; but now we know that they fed bountifully upon insects!

Until the publication in April, 1911, by the United States Department of Agriculture, of Professor W. L. McAtee's

circular, No. 79, on "Our Vanishing Shorebirds," the American people were totally unaware of the enormous value of those birds as destroyers of insects. For example:

9 species (of phalaropes, sandpipers and plovers) feed on mosquitoes.
2 species feed on the Texas fever tick!
4 species feed on horse-flies, both larval and adult.
7 species feed on crane-flies.
6 species devour great quantities of locusts.
24 species feed on grasshoppers.
2 species feed on the cotton-worm.
6 species make a specialty of the very destructive weevils.
7 species eat the bill-bug.
9 species devour beetles of several very destructive species.
6 species devour the destructive crawfishes of the South.

Now, these facts are of much more than forgetful interest. They concern the family market-basket and the grocer's bill. Every insect that destroys any portion of a farm crop of the United States thereby raises to us the cost of living; and the American people can take that fact or leave it.

For two hundred years the hunters and sportsmen of America have been regarding the shore birds solely as game birds, measurable only in food ounces on the table. First, they began to slaughter the large species, but as the supply diminished rapidly before the semi-annual gauntlet of guns the standard of shooting ethics sank lower and lower. In 1900 the bottom of the scale was reached. It was about that time that "sportsmen" began to shoot *sandpipers*, for *food!* As a food proposition, the sandpiper is in the sparrow class.

From the interior of the United States about ninety-eight per cent of the shore birds have disappeared, possibly forever. Along the great semi-annual migration routes, particularly

the Atlantic coast during the "spring flight," when the birds are concentrated on that narrow line, a dozen species still are represented. Last May (1913) two friends took me to Great South Bay, Long Island, on a stormy voyage of observation. In one day we saw about 2,000 birds of nine species, and had the day been fine we would have seen a great many more. It represented the massing together, on those famous resting and feeding grounds, of the whole New York supply of shore birds. It was a pleasure to find that seed stock of shore birds and to note its possible value in bringing back those vanishing species.

In view of the ease with which shore birds can be shot, and the continuous lines of gunners that everywhere greet their appearance, it is a wonder that any have survived to this time. But for these much-persecuted birds a new era has dawned. There are about sixty species of North American shore birds, and under the terms of the new federal migratory bird law, in effect since October 1, 1913, *fifty-four* of those species are now permanently protected from slaughter everywhere in the United States. It is hoped that Canada soon will enact a similar provision.

The enemies of our native birds who desire the precious and sportsmanlike (?) privilege of slaughtering emaciated ducks and geese in January, February and March are very anxious that the federal migratory bird law should at once be declared "unconstitutional," and destroyed. If that law ever is so destroyed, *we very soon will see the last of our shore birds!*

There are many genera and species of birds in this Order,

but for certain reasons it is difficult to form an acquaintance with more than a very few of them. The majority of them reach us only as birds of passage, on the way to or from their breeding grounds farther north, and during the year are with us only a few weeks. Others are so few in number, and live in such remote localities, that they also are beyond our acquaintance. As usual, therefore, we will introduce only those species that are sufficiently abundant, long-tarrying and generally interesting to make them worth knowing.

The Killdeer Plover[1] makes an excellent representative of a large section of this Order. It is of average size and handsome appearance, and is such a loud and frequent caller its presence is always well advertised. It is so widely distributed that millions of people have seen it alive. It is a bird of the inland ponds and pools, not of the seashore, and it is found throughout the whole temperate portion of North America, from the Atlantic to the Pacific. It is not a bird of heavily timbered regions, however, and is most abundant in the lake regions of the Mississippi Valley. On the prairies of the middle West, wherever there are small, shallow ponds, or even pools in wet meadows, all through the season of mild weather you will hear its clear and rather strident cry of "*Kill-d-e-e-r! Kill-d-e-e-r!*" And it is always a pleasing sight to see this immaculate bird in snow-white, brown and black plumage standing at the edge of a bit of water—a stroke of living high-light in the landscape. I always liked the Killdeer, and, although I have seen hundreds, and heard its cry a thousand times, I never wearied of its

[1] *Ox-y-e'chus vo-cif'er-a.* Length, 10.50 inches.

companionship. In my opinion it is our most beautiful shore bird.

The American Golden Plover,[1] also called Green and Field Plover, is (or, at least *was* until recently) the Plover most frequently seen in the Atlantic states, and in the markets.

KILLDEER PLOVER.

It frequents the banks of marshes and tide pools along the seashore, but it is equally fond of the pools and ponds of the uplands, particularly in old meadows. They are seldom seen during the spring migration; they do not remain with us during the summer, and it is only during the months of their fall migration, from August 15 to November 1, that they are really in evidence. During the open season they are much sought by gunners—which is the reason why there is now only one bird where formerly there were fifty. In fact, the

[1] *Char-a-dri'us do-min'i-cus.* Average length, 10 inches.

AMERICAN WOODCOCK.

Golden Plover is actually on the brink of oblivion, and in effect it is to-day so nearly extinct that it may as well be classed with the birds that were, but are not.

THE AMERICAN WOODCOCK[1] is the oddest-looking land-bird in North America. Its legs are too short for so large a body, its tail is only half as long as it should be, its neck is too short and too thick, and its head is entirely out of drawing. The eyes are placed too far back, and the bill is too long and too straight. In appearance, the Woodcock looks like an avian caricature.

But, odd or not, this bird is very dear to the heart of the great American sportsman, and its plump brown body is a genuine delicacy. It has a long array of local names, some of which are so uncouth that the less said concerning them the better.

WOODCOCK ON NEST.

Photographed at a distance of 6 feet, by Le Roy M. Tufts, and copyright, 1903.

The long, sensitive

[1] *Phi-lo-he'la mi'nor.* Average length, about 10.50 inches.

beak of this bird is really a probe and a pair of forceps combined, for probing in soft earth or mud after earthworms, and dragging them out when found. In order to feed, the Woodcock has no option but to frequent the moist banks of wooded streams, or wet grounds in the shelter of bushes or timber, where it can work unobserved. During the day it lies low to escape observation, and does the most of its feeding at night. It is seldom found in open ground, and Woodcock-shooting is much like shooting quail among brush—quick and difficult.

This bird ranges throughout the United States from the Atlantic coast to the edge of the Great Plains. In the course of much hunting in central Iowa I never but once shot a specimen of this species. In the eastern states it is only the most skilful local hunters who can go out and find a Woodcock. Unless it is given a ten-year close season, and quickly, its extinction is certain.

As a highly esteemed game bird, WILSON'S SNIPE, or the JACK SNIPE,[1] is a close second to the woodcock. Like the latter, it has a long, straight bill with a sensitive tip, with which to probe down in the mud or soft earth of pond margins or spring holes, to the home of the angle-worm. Unlike the woodcock, however, this Snipe is a very well-formed bird, and it feeds more in the open, which renders its pursuit more fruitful of results. On the wing it is awkward and angular-looking. It flies in a very angular course, but so rapidly it is a difficult mark to hit. When it rises, it utters a shrill cry, half scream and half squawk, and in windy weather it often flies quite high.

[1] *Gal-li-na'go del-i-ca'ta.* Length, about 11 inches.

This Snipe has a very wide range—from Alaska and Hudson Bay through all the United States, except the arid regions, to northern South America. Its most conspicuous color is brown, striped on the back with black, which in brushy ground protects the bird so well it is difficult to distinguish.

WILSON'S SNIPE.

Whenever at the seashore in warm weather you wander "far from the madding crowd," you may make the acquaintance of the SEMIPALMATED SANDPIPER,[1] or possibly it will be the LEAST SANDPIPER[2]—a trifle more minute, and with no web at the base of its toes. At a distance of ten feet the two species look precisely alike, and there is no need to worry about an exact identification. They are also called "Peeps" and "Ox-Eyes," and the toes of the Semipalmated Sandpiper are partly webbed.

[1] *Er-e-un-e'tes pu-sil'lus.* Length, 6 inches.
[2] *Ac-to-dro'mas min-u-til'la.* Average length, 5.50 inches.

As the green-topped surf dashes to pieces on the pebbles and goes sliding in a silvery sheet up the yellow sand, you will notice just above its frothy edge a flock of little gray sprites, their tiny legs twinkling as they patter swiftly over the smooth floor. Sometimes the sliding sheet of water overtakes them. If it is nearly spent, they mind it not; but if the rush is too strong, up springs the flock, all members at the same instant, and with quick flashes of light-gray wings, it skims the surf-sheets or the sand, to a point farther on. The unison of action in the rising, flight and landing of the flock is as perfect as if each little pair of wings were worked by the same wires. How does each bird know the impulses of all the others? Watch them, and see if you can guess the secret.

LEAST SANDPIPER.

At the seashore I never weary of watching these busy little creatures, and never fail to be amused by the twinkling of their tiny legs as they run before the water. As the sheet of surf recedes, down they run after it, to pick up whatever of insect or other edible animal life it has brought to them from the sea, or uncovered on the sand.

Small as the Sandpipers are, their slaughter by gunners was in full career when it was stopped by the federal migratory bird law, on October 1, 1913. Had it continued a little

longer these helpless and heedless little birds would soon have been exterminated from our bird fauna. To-day the species mentioned above are found very thinly sprinkled throughout the whole eastern United States, and they breed northward quite up to the Arctic Barren Grounds. Wherever they are, they are interesting birds, and worthy of your friendship.

The Long-Billed Curlew[1] is a bird which has caused much wonderment and many guesses in the middle West, where on the virgin prairies it once was frequently seen. This bird's trick of holding its wings high above its back for two or three seconds after it alights upon the ground always attracts special attention. Its cry, also, oft repeated in spring, is very weird and peculiar, and well calculated to make the bird remembered.

This bird once was common on the rolling prairies of Iowa, regardless of ponds or streams, where it sought every sort of animal life small enough to be swallowed. It is easily recognized, even in flight, by its long, curved bill. In its form, its beak and its legs, it is almost a perfect counterpart of a typical ibis, but it has the mechanically mottled plumage of a typical shore bird. Although by some ornithologists this bird is credited to the whole length and breadth of the United States, there certainly are some very wide regions from which it is totally absent. In various localities it has various names, some of which are Sickle Bill, Sabre Bill, Smoker, Spanish Curlew and Mowyer.

This bird is very sympathetic toward its wounded mates,

[1] *Nu-men'i-us lon-gi-ros'tris.* Average length, about 23 inches; bill of adult bird, about 8 inches.

and in response to the cries of a bird that has been shot, a flock sometimes will return, and with loud cries circle near the gunner, at close range, until several more have been brought down. (D. G. Elliot.)

Besides the shore birds mentioned above, there are several groups which are of interest chiefly to the special student, and which there is no space to introduce here, save by name. There are the oyster-catchers, turnstones, godwits, stilts and phalaropes. In the *Order Limicolae* as a whole there are in North America, north of Mexico, about seventy-five species and subspecies.

CHAPTER XXVIII

ORDER OF CRANES, RAILS, AND COOTS

PALUDICOLAE

THE name of this Order, *Pal-u-dic'o-lae*, means "marsh-dweller," and the presence in it of the cranes is enough to make it notable. It must be admitted, however, that from the stately and commanding crane down to the humble coot, the scared gallinule, and the diminutive rail, is a long step downward. But it is inevitable that the efforts of science to classify the birds of the world in as few Orders as possible should bring together many widely divergent forms. To have a greater number of Orders would be still more confusing to the general student than the present number.

In the Order of Marsh-Dwellers there are only two Families which we feel called upon to notice here. These are the Cranes and the Rails, Gallinules and Coots.

THE CRANE FAMILY

Gruidae

The cranes of the world form a group of about eighteen species, which, in stateliness, beauty and oddity of habit, are second only to the ostriches and their allies. Every zoological garden which possesses a good collection of cranes has good reason to be proud of it. The *Crowned Cranes* of Africa

are the most beautiful species of all, the *Paradise Crane* is the oddest in appearance, the little *Demoiselle Crane*, of the Nile region, has the most amiable disposition. The big, red-headed *Saras Crane* of India is the most quarrelsome, and the stately *Whooping Crane* of North America is the species which comes nearest to being pure white.

Through some mischievous and unfortunate circumstance, the great majority of the people who live in the eastern United States have become almost fixed in the habit of calling the great blue heron the "blue crane." The former is common enough along watercourses and tidal rivers, but it is probable that not more than one person out of every ten thousand has ever seen in America a living wild crane. As applied to wild birds, the word "crane" should be used most sparingly. Along the Atlantic coast, the only locality in which it might correctly be used afield is on the interior savannas of Florida.

The Whooping Crane[1] is now one of the rarest of all living North American birds. Fourteen years of diligent quest for living specimens have produced but eight birds. There were in captivity on January 1, 1914, exactly five specimens, only two of which were in the United States. Inasmuch as this bird is of no value save to zoological gardens, it must be believed that it has been wantonly shot, down to the verge of extinction. Since it is a practical impossibility to induce it to breed in captivity, the species seems almost certain to disappear from our fauna at an early date.

Although this splendid species is not as yet wholly extinct,

[1] *Grus americana.*

it is very near it. In view of its range from the Arctic Barren Grounds to the Gulf of Mexico, there is not the slightest chance that it can be sufficiently protected from shooting to prevent its extermination about 1934.

As seen with its wings closed, the visible plumage of this grand bird is all snowy white. When the wings are spread, however, it is found that the largest feathers, called the primaries, are jet black. The upper tail coverts form a plume that arches upward over the tail, and gives the bird a very jaunty air. The top of the head is bare of feathers, and the rough skin has a dull-red glow. The eye is big and keen, and the bill is long, strong and rather blunt on the end, for digging angle-worms out of the ground, not for spearing fish.

The strength of the beak and neck of the Whooping Crane in the New York Zoological Park is truly remarkable. The bird roams at will in a grassy meadow of about two acres in extent. Soon after it attained full growth, it was noticed that after every rain it would vigorously attack the grass. With mandibles two inches apart at the tips, it would drive its beak into the earth to a depth of from two to three inches, grasp a tuft of grass between them, and by main strength deliberately pull it up by the roots. A few vigorous shakes sidewise dislodged any angle-worms which might have been brought up, after which the roots of the tuft would be carefully looked over before being cast aside. Next in order, the wounded earth would be carefully probed and picked over. In a few hours, this bird sometimes pulled up the grass on a space fifteen feet square, and finally disfigured the ground so seriously that after every rain the Crane had to be shut up.

A living full-grown Whooping Crane stands 4 feet 3 inches high. Its name is due to its wonderfully clear, powerful and trumpet-like call, which is uttered with the beak pointing

N. Y. Zoological Park.

WHOOPING CRANE

straight upward. When properly delivered, the crane's call consists of two notes, an octave apart, one following the other so closely that there is no interval, thus: "Quah-KEE-E-E-oo!" I believe that a Crane's trumpet call will carry as far as the roar of a lion.

All our Cranes are strictly open-country birds, and for-

merly inhabited the fertile, froggy prairies and corn-fields of the Mississippi Valley; but the species named above never was really numerous anywhere. In travelling, cranes always fly in single file, with their long necks and legs in a straight line, and in that position the length of the bird seems very great.

The Sandhill Crane[1] is a smaller bird than the preceding, always has been more numerous and therefore is much more widely known. In color it is a dull bluish-slate, and it has a half-bald, dull-red head, like a whooping crane. The pioneers who were on the western prairies from 1850 to 1870 occasionally saw long lines of enormously long birds sailing high in the heavens, trumpeting their identity to those unable to see them, or alighting on stilt-like legs in the corn-fields. In springtime, when the birds alighted in the bare fields, and stalked about with majestic stride, they seemed fairly gigantic. They went far north in spring to breed, and on their return trips sought their winter home in Texas, Florida, and elsewhere along the Gulf coast.

Cranes in captivity, and wild ones also, often indulge in strange antics. Suddenly, and for no apparent reason, one will half-open its wings, leap into the air and begin to dance. It bobs and bows, salams and courtesies almost to the ground, and in sheer delight repeatedly leaps into the air. Often the lead of one bird is followed by several others, and occasionally (as I have myself seen) a whole wild flock of fifteen or twenty birds will join in the fandango.

Whenever the days are cool and clear,
The sandhill crane goes walking

[1] *Grus mexicana.* Height, about 3 feet, 10 inches.

Across the field by the flashing weir,
Slowly, solemnly stalking.
The little frogs in the tules hear,
And jump for their lives if he comes near;
The fishes scuttle away in fear,
When the sandhill crane goes walking.

The field folk know if he comes that way,
Slowly, solemnly stalking,
There is danger and death in the least delay,
When the sandhill crane goes walking.
The chipmunks stop in the midst of play;
The gophers hide in their holes away;
And "Hush, oh, hush!" the field mice say,
When the sandhill crane goes walking.

—Mrs. Mary Austin, in *St. Nicholas*.[1]

THE FAMILY OF RAILS

Rallidae

From the stately crane to the timid, self-effacing Virginia Rail[2] is going at one step from the sublime to the ridiculous. To the latter, which is a bird about half the size of a bob-white, a crane must seem like a giant whose head is in the clouds. The crane can either fight, run or fly away; but the rail is safe only when threading the mazes of a reedy marsh, where no enemy can follow it far. When boating on a marsh filled with cat-tails, or reeds, or tall grass, you may hear a score of rails clucking and calling in the heart of the green tangle about you without seeing one. There are times when it seems as if this bird is a deliberate and intentional ventriloquist, for its voice seems to come from all directions save that which points toward its owner. A marsh is as necessary to rails as water is to fishes.

[1] By permission of The Century Co. and of the author.
[2] *Ral'lus virginianus*. Average length, 9 inches.

When a rail flies up out of a marsh or a meadow, you can recognize it by its feeble, fluttering flight, and its hanging legs. Often in alighting it seems to fall helplessly into the tall cover.

In the wide marshes along the New Jersey shore, dwells a species known as the Sora Rail[1] in numbers sufficiently

VIRGINIA RAIL.

numerous to attract gunners. The moment the "law is off," the flat-bottomed boats are brought out, and the fusillade begins. With no larger game available, even a small Rail can form an excuse for a day's outing on the marshes, bringing the grip of the gun-stock, the dull "boom" that is music to the desk-weary man, and the welcome smell of gun-

[1] *Por-za'na carolina.* Length, about 9 inches.

powder. Therefore, rail not at all those who shoot rails; for there be some who do not shoot "for revenue only."

As may be inferred, rails are good to eat, though not very good; for they are several sizes too small for real comfort. There are only about twelve species in North America, of which the *King Rail*, 15 inches long (of eastern North America), is the largest, and the *Virginia Rail* is the most widely distributed. The latter has a long bill (1½ inches), and is found from Long Island to British Columbia, breeding everywhere that marshy lands occur. It is an olive-brown bird, streaked and barred with black, and in places with white also.

While the most typical rails have long bills, some species are short-billed.

A GALLINULE is a bird which lives, acts and looks like a rail, and is easily mistaken for either a rail or a coot; but it stands midway between the two. It is distinguished from the *rails* by the *bare, horny shield upon the forehead*, and from the *coots* by the long, slender, *unwebbed toes*. The FLORIDA GALLINULE[1] is also called the *Blue "Rail,"* and *Red-Billed "Mud-Hen,"* and its general color effect is bluish gray. It is found in localities adapted to its habits throughout temperate North America, north to Canada, and as far south as Brazil.

THE PURPLE GALLINULE,[2] of the southern half of the eastern United States, is a bird of beautiful plumage. Its colors are a rich, dark purple on the head, neck and shoulders, lightening to peacock blue on the back and lower breast.

[1] *Gal-li-nu'la gal-e-a'ta.* Length, about 13 inches.
[2] *I-o-nor'nis mar-tin'i-ca.* Length, 12 inches.

Even as it rises beside your railway train you can easily recognize it before it is lost to view. It still breeds on the headwaters of the St. Johns, opposite Melbourne.

The Coot, or Mud-Hen,[1] is a bird of the small creeks, and the shores of shallow lakes and ponds where cat-tails,

THE COOT.

lizard-tails, iris and rushes grow abundantly. It is natural for any one who writes about a bird to think of it as he saw it most impressively. My memory goes back to my first days of alligator and crocodile hunting, in the little creeks that flow from the Florida Everglades into the head and western side of Biscayne Bay. Then and there Mud-Hens were so numerous and so tame they became positively monotonous. As we rowed silently along Snake Creek, or Arch

[1] *Fu-li'ca americana.* Average length, 14.50 inches.

Creek, the man in the bow ready for the next "big, old 'gator" found sunning himself at the edge of the saw-grass, up would go three or four slaty-blue birds of the size of bantam hens. With feeble flight, and feet pattering on the water to help along, they would fly ahead of the boat in a most offensively ostentatious manner. Of course any old alligator knows that a scared Coot means a boat; and since every boat is known to be loaded, the natural sequence of a frightened Coot is the bottom of the creek.

The foot of the Coot is very curiously formed. It looks as if originally it had been fully webbed, but some one in sportive mood took a pair of scissors, cut out the centre of the web and cut deep scallops in the web along each side of each toe. The foot, therefore, is half webbed—an excellent arrangement for running on water when the wings lend their assistance. This bird never rises on the wing without a preliminary run on the water of from fifty to one hundred and fifty feet. It swims and dives quite well, but as a rule it prefers to live as do the rails and gallinules, in the edges of heavy marsh vegetation, where it can pick up its living of buds, blossoms, seeds, aquatic insects and snails, and also hide from its enemies.

As yet the Coot is not considered a "game bird," and is not slaughtered for food; but, once let the evil eye of the epicure fall with favor upon this bird—or any other—and its doom will be sealed.

The distribution of this species is given as "from Greenland and Alaska southward to the West Indies."

CHAPTER XXIX

ORDER OF HERONS, STORKS, AND IBISES

HERODIONES

ALL the members of this Order are either sturdy fisher-folk or longshoremen. They wait not for bud or blossoms, or ripening grain, but when hunger calls they go a-fishing. Then woe betide the small fish or frog of any size which is tempted to stray into the warm shallows and linger there.

The neck of the heron is specially formed by Nature for quick lunging. At rest, it folds upon itself, in angular kinks, until the neck totally disappears, and the bird's head seems to rest down upon its shoulders. But alarm this neckless bird, and presto! it is another creature. Up goes the head into the air, borne on a long, flat-sided neck, which curves like a capital S.

When a heron is fishing, it stalks slowly and silently along the shore, preferably in water about six inches deep, its head carried well forward but about on a level with the top of its shoulders, while its big eyes keenly scrutinize every object in the water. It takes long steps, and plants each foot softly, in true still-hunter fashion, to avoid alarming its game. When a fish is found within range, the kinks of the neck fly

straight, and the fish is seized between the mandibles. The fish is not stabbed through and through, as is generally supposed. In swallowing a fish, it is, of course, taken head first.

Herons, egrets and ibises are gregarious, or sociable, in their nesting habits. In other words, they are fond of nesting together; and a place of many nesting birds is called either a "heronry," or a "rookery." The nesting sites are chosen with due regard to seclusion and food supplies. Usually the heronry is located in low trees that stand on a small island, or else grow up out of a swamp or bayou, so that without a boat they are almost inaccessible.

Thirty years ago the greatest and most numerous heronries in the United States were in Florida, on the headwaters of the St. Johns, on the edge of the Everglades, the Big Cypress Swamp and the small rivers and creeks that run down to the sea. To-day it is difficult to find in Florida a heronry worthy of the name, or one which belongs to a large assemblage of birds; but there are a few, carefully protected by wardens. Herons, egrets and ibises have been so persistently destroyed for their "plumes" that not more than one-fiftieth of the original number remains.

As will be seen by the following table, the Order Herodiones contains quite a number of important water-birds which are not herons:

ORDER HERODIONES

FAMILIES.		EXAMPLES.
HERON	*Ar-de'i-dae*	Herons, Egrets and Bitterns.
STORK	*Cic-o-ni'i-dae*	Wood Ibis.
IBIS	*I-bid'i-dae*	White Ibis and Scarlet Ibis.
SPOONBILL	*Plat-a-le'i-dae*	Roseate Spoonbill.

THE HERON FAMILY

Ardeidae

The Great Blue Heron[1] is the largest, handsomest and most conspicuous Heron in North America—if not the world. This is the bird so persistently called the "*Blue Crane*"; and one of the first things for the beginner to learn about birds is to call this bird a *Heron*, instead of a "crane"!

Whether fishing in the shallows along the shore, or perching on a dead tree, or winging his way slowly and majestically through the air, this is a fine, handsome bird, and a welcome sight to see. Its height when standing fairly erect is 3 feet, 3 inches. It has plumes on its head, breast and back, which American cranes do not have. It is never seen away from watercourses, and, it may be added, in warm weather no river scene is truly complete and perfect without one!

When seen with closed wings, its upper neck and body are of a bluish-slate color, and its under surfaces are white, streaked up and down with black. In the North this bird is shy, and afraid of being shot at; but in the tropics, where they are not persecuted, I have sometimes approached within thirty feet of full-grown birds without alarming them.

The range of this bird is from the arctic regions southward wherever the conditions of water, timber and food are suitable, to the West Indies and South America; but there are many arid and treeless regions from which it is totally absent.

The Little Green Heron, or "Fly-up-the-Creek,"[2] is found throughout the well-watered regions of the United

[1] *Ar-de'a her-o'di-as.* Length, from 40 to 48 inches.

[2] *Bu-tor'i-des vi-res'cens.* Average length, about 18 inches.

States, wherever timber is plentiful. In many localities of the middle West and the Mississippi Valley from which the great blue heron is now absent, this is the only heron to be

N. Y. Zoological Park.

GREAT BLUE HERON.

found; and away from the Atlantic coast it is the most familiar member of its Order.

Its body is about as large as that of a sparrow hawk, and when in a crouching attitude it is a very proper-looking bird. With its neck stretched, however, and its head held high, the body seems much too small, and the neck makes the bird

seem top-heavy. Start it off in flight, however, and it is one of the most ill-fitting herons that ever took wing. It is so angular and loose-jointed it seems ready to fall to pieces, and its flight is slow and feeble. The prevailing color of its plumage is a beautiful metallic green, but the flat shape of its neck, and the peculiar set of the feathers thereon have caused many young taxidermists some very sad hours.

The food of the Green Heron consists of minnows, small frogs, tadpoles and insects.

The Little Blue Heron[1] is still occasionally seen in Florida, because it bears no fatal "plumes." In summer this species sometimes wanders northward as far as Illinois and Maine. One striking peculiarity of its plumage is worthy of special mention. Until one year old the young birds are *snow white*, and look precisely like young snowy egrets which are of corresponding size and form. Sometimes it is a matter of difficulty to convince a person that *a snow-white bird* is a Little Blue Heron in its first year. But the moulting finally tells the story. First the plumage is flecked with blue, then it is half blue, and at last the solid-blue color prevails. It seems to me that in clothing young and inexperienced birds in snow-white robes, which attract all eyes to them, Nature forgot all about "protective coloration"!

The Black-Crowned Night Heron[2] breeds all around New York City, and there is a wild colony of more than twenty birds regularly nesting and living in the Zoological Park. We feed them daily, with raw fish, on the bank of Lake Agassiz.

[1] *Ar-de'a cae-ru'le-a.* Average length, 24.50 inches.
[2] *Nyc-ti-co'rax nycticorax nae'vi-us.* Length, 24.50 inches.

As its name implies, this bird has a crown of glossy black feathers, with two or three long white occipital plumes. It is a southern bird, but it breeds as far north as Massachusetts

LITTLE GREEN HERON.

and Illinois. Like its twin, the *Yellow-Crowned Night Heron*, it is half-nocturnal in its habits. When at night in Florida you hear a bird say "*Quawk!*" and repeat it to you from the depths of the mangroves as your boat glides by, you know it is a Night Heron. Both these species have beautiful plumage,

and are handsome birds. Their distinguishing marks are: thick bodies, and short, thick necks; short legs (for herons), and two or three round, wisp-like plumes from five to seven inches long growing out of the top of the head, and drooping backward.

The Snowy Heron, or Snowy Egret,[1] when fully adult, is one of the most beautiful white birds in all the avian world. Its form is the embodiment of symmetry and grace, its plumage is immaculate, and the filmy "plumes" on its head and back are like spun glass. Its black legs and bill merely serve to intensify the whiteness of its feathers.

But the vanity of women has been the curse of the Snowy Egret. Its plumes are finest during the breeding season, and it was then that the hunters sought them, slaughtering the parent birds in the rookeries by thousands (when they were abundant), and leaving the nestlings to die of starvation. If all women could know the price in blood and suffering which is paid for the "white badge of cruelty," surely but few could find any pleasure in wearing them. It is strange that civilized woman—the tender-hearted, the philanthropic and compassionate—should prove to be the evil genius of the world's most beautiful birds.

In Florida, this bird once lived and bred, in thousands, on the headwaters of the St. Johns, around the Everglades, and the heads of the streams that run down to the sea. At the first shot fired in a rookery, a white cloud would arise, and old residents tell how "the savannas were sometimes white" with these beautiful creatures. In Florida and else-

[1] *E-gret'ta can-di-dis'si-ma.* Length, about 23 inches.

where there are now twenty colonies of White Egrets, containing about 10,000 birds, all under the protection of the National Association of Audubon Societies. At Avery Island, Louisiana, Mr. E. A. McIlhenny has a colony of about 5,000 birds (in 1914) which he began to protect in 1894.

From 1900 to 1913 the Audubon Societies of America waged constant warfare against the killing of Egrets and the sale of Egret plumes, or "aigrettes." Through hard campaigning, thirteen state legislatures had been educated into passing state laws forbidding the sale of Egret plumes, and the plumage of all the protected birds of those states. These laws exerted a great influence for good, but the free importation of wild birds' plumage from abroad kept the plume-wearing women of America well supplied. In all parts of the world outside the United States where Egrets are found, the slaughter of those birds continued at a terrible rate, to supply the feather market of Europe and America.

Six years ago the bird-lovers of England started a movement in London for the curbing of the feather trade, but up to the end of 1913 no law had actually been passed.

In January, 1913, the framing of a new tariff law by our Congress afforded an opportunity to ask for the insertion of a clause to prohibit all importations of the plumage of wild birds for commercial purposes of any kind, but from this proposal ostrich feathers and the feathers of all domestic fowls were excluded.

A great campaign was made for "the plumage clause," in which the women of America who are opposed to the slaughter of wild birds for "the feather trade" took active part. The

movement finally triumphed, and on October 4, 1913, all importations of Egret plumes, aigrettes, birds of paradise skins, "numidi" feathers, "goura" feathers and all others

N. Y. Zoological Park.

GREAT WHITE EGRET.

from wild birds ceased forever. Even such plumage actually worn on hats and bonnets is prohibited entry at all our ports.

This plumage law is the first ever enacted for the protection of the birds of the world at large. Hereafter the millions

of birds previously slaughtered annually for America will not be killed, because there will be no sale for them. Already the London feather market has suffered a decline of more than 33 per cent. To-day (1914) the bird protectors of England, France, Holland and Germany are fighting for the enactment of prohibitory laws similar to ours.

The American Egret, or Great White Egret,[1] is, when adult, our second largest bird of the Order of Herons with pure-white plumage, the great white heron being the first. Much to the misfortune of this species, it possesses about fifty "aigrette" plumes which droop in graceful curves from the middle of its back, far beyond the tail and wing tips. For these beautiful feathers this bird also has been pursued by plume-hunters, to the point of total extermination. In the protected Egret rookeries of Florida a few of these birds still live, and if protection continues they may by breeding restore their species to our avifauna on a permanent basis.

The American Bittern[2] is a fairly large bird, of a yellowish-brown color, elaborately mottled and streaked with various shades of light and dark. When standing in concealment, it draws in its neck until it wholly disappears in its plumage. The result is an egg-shaped bird, with a beak at the small end, pointing heavenward, and short, thick legs below. I have seen a Bittern stand motionless in that idiotic attitude for nearly an hour at a time. Even in the whirling gayety of our big Flying Cage, it takes life sadly, and never makes merry, as do all other birds, even the funereal vul-

[1] *Her-o'di-as e-gret'ta.* Length, about 40 inches.
[2] *Bo-tau'rus len-tig-i-no'sus.* Length, 26 inches.

tures. Standing erect, however, the Bittern is a bird with a fair length of neck; but its neck seems much too large and heavy for its body.

Because of the peculiar sound it utters, the Bittern is called the "*Stake-Driver*," and "*Thunder-Pumper*." I never

AMERICAN BITTERN.

have heard thunder pumped, but with stake-driving am quite familiar, and must say that I never heard a Bittern give forth a cry that sounded like it. I think also that the "booming" of the Bittern should be taken subject to inspection and approval; for to at least one tympanum there is a wide difference

between a real "boom" and the alleged "boom" of the Bittern.

This bird inhabits sloughs and marshes of tall, rank grass, in which it hides most successfully by standing very erect, and pointing its beak toward the zenith. It feeds chiefly upon frogs, small snakes, lizards and crawfish.

The Least Bittern[1] is the smallest member of the Heron Order—a queer little brownish-yellow and black creature, duly mottled of course, with a sparrow-like body, and a wide, flat neck several sizes too large for the body of the bird. On the whole, it is a pretty little creature, associated by habit with the long-billed marsh wren, the rail, and the red-winged blackbird.

THE STORK FAMILY

Ciconiidae

The real Storks are found only in the Old World; but the Wood Ibis[2] is a member of the Stork Family, and he looks it. He is a big, burly, bald-headed, good-natured bird, standing 31 inches high. No matter what goes on around him, he is as solemn as an owl. Although large enough to do much damage to birds smaller than himself, he associates with herons, ducks, geese and ibises of all sizes, without the slightest desire to harm any of them, or even to rule them. In a large bird, capable of much mischief, such perpetual good temper is worthy of note.

When this bird is adult and clean, its plumage is pure white, and it is a noteworthy member of any feathered community.

[1] *Ar-det'ta ex-i'lis.* Length, 13 inches.

[2] *Tan'ta-lus loc-u-la'tor.* Average length, 38 inches.

Specimens are nearly always procurable in Florida at a reasonable price ($15), and there are always several in the New York Zoological Park. This species "breeds in Florida and the Gulf states, after which it wanders north as far as Kansas, Indiana and New York."

THE IBIS FAMILY

Ibididae

In North America this Family contains three species of birds that are heron-like in general form, but are quite differently provided as to their bills. The bill of a true ibis is long, slender and curved, much like that of a long-billed curlew, and it is fitted for probing in soft earth or shallow water. The neck is round, and the head also, instead of being flat-sided like that of a heron.

The White Ibis[1] is yet found in Florida, and excepting the four outer wing-feathers (primaries), which are black, it is a pure-white bird. Specimens in the first year are grayish brown and white, and in color do not even suggest the pure-white plumage of the second year, and thereafter. This species rarely comes into any of the northern states.

The beautiful and brilliant Scarlet Ibis,[2] once a habitant of southern Florida and Louisiana, is no longer found in the United States. In color it is one of the most brilliant birds in all America, though by no means so beautiful as the resplendent trogon. I saw it in great numbers on the mud flats at the mouth of the Orinoco, and shot it on the coast of

[1] *Guar'a al'ba.* Average length, 24 inches.
[2] *Guar'a ru'bra.* Length, 23 inches.

British Guiana. On Marajo Island, in the delta of the Amazon, it breeds in hundreds—a sight worth a long journey to see. Unfortunately, it is impossible to keep specimens of this species in confinement and have them retain their color. In a few months they fade until they are pale pink.

The Glossy Ibis[1] is a dark-colored bird, its prevailing color being rich brownish purple with metallic-green reflections, and abundant iridescence. It *seems* smaller than the two light-colored species mentioned above, but in reality it is not. In 1899 two specimens were captured on the St. Johns River, opposite Melbourne, Florida, and one of them lived two years in the Zoological Park. This species is rare, even in Florida, but in Texas and the Southwest the *White-Faced Glossy Ibis* is of more frequent occurrence.

WHITE IBIS.

THE SPOONBILL FAMILY

Plataleidae

The Roseate Spoonbill,[2] or Pink "Curlew," is the only member of the Spoonbill Family in America, and it is also the farthest from the type of the Order Herodiones. It is really an ibis with a wide bill which terminates in two

[1] *Pleg'a-dis au-tum-nal'is.* Length, 23 inches.

[2] *A-ja'i-a a-ja'i-a.*

rounded, flat plates, nearly two inches wide. When standing erect, it is about 16 inches high. Its body plumage is either rosy pink or white, and its wing coverts and secondaries are tinted a very beautiful rose-madder pink, the color being most intense on the lesser coverts.

Once quite abundant throughout the lagoons, streams and swampy districts of Florida, this beautiful bird is now so nearly extinct there that no live specimens have been obtainable nearer than the Gulf coast of Mexico. Indeed, until very recently there were good reasons for the belief that not one Roseate Spoonbill remained alive anywhere in Florida. Now, however, it is a pleasure to record the fact that this species has not wholly disappeared from our avifauna.

In *The Auk* for January, 1904, Mr. A. C. Bent describes the finding of a few small flocks of these birds near Cape Sable, which he found nesting in two localities. "The principal breeding-ground of the Roseate Spoonbills was a great morass on the borders of Alligator Lake, a few miles back from the coast near Cape Sable, where the mangrove islands in which the birds were nesting were well protected by impenetrable jungles of saw-grass, treacherous mud-holes, and apparently bottomless creeks. . . . The Spoonbills were here in abundance, and had eggs and young in their nests, in all stages, as well as fully grown young climbing about in the trees. The old birds were tamer than at Cuthbert Lake, and allowed themselves to be photographed at a reasonable distance."

"The Spoonbills," continues Mr. Bent, "will probably be the next to disappear from the list of Florida water-birds.

ROSEATE SPOONBILLS IN FULL COLOR.

They are already much reduced in numbers and restricted in habitat. They are naturally shy and their rookeries are easily broken up. Their plumage makes them attractive marks for the tourist's gun, and they are killed by the natives for food. But fortunately their breeding-places are remote, and almost inaccessible."

The nests found by Mr. Bent on Cuthbert Lake, almost on the edge of the Everglades, were built in red mangrove trees on the edge of the water, all on nearly horizontal branches from 12 to 15 feet from the ground. "They were well made, of large sticks, deeply hollowed, and lined with strips of bark and water moss. One nest contained only a single, heavily incubated egg, one a handsome set of three eggs, and the other held two downy young, not quite half grown."

In my opinion there is no "cause," either existent or creatable, not even the "cause of science," which could justify the killing or capture of any of the birds composing those last small flocks of Spoonbills. Not even the necessities of a zoological park should for one moment be accepted as an excuse for meddling with that avian remnant; and let no hunter think of offering a bargain in live Spoonbills from Cape Sable, or of now writing to ask "What will you give?"

In January, 1914, it was reported to me at Marco, Florida, that a colony of Spoonbills inhabits a protected egret rookery that exists on an island in a small river that flows into the Gulf of Mexico a short distance below Marco Island.

CHAPTER XXX

ORDER OF FLAMINGOES—A CONNECTING LINK

ODONTOGLOSSAE

THE long-legged, long-necked FLAMINGO is a very perfect connecting link between the wading birds and the swimmers. It is a most curiously formed bird. It has enormously long, stilt-like legs, like a heron; but its feet are fully webbed, like the feet of a duck. Its standing height is from forty-eight to fifty-four inches. It has a long, slender, crane-like neck; but its thick, broken-backed bill is provided with lamillae along the edges, like the bill of a shoveller duck. The anatomy of the bill and tongue of this bird is particularly interesting.

This bird is by habit a true wader, and lives and breeds near shallow lagoons, where it can walk in the water and feed on the bottom.

The nest of this queer bird is a low, flat pillar of mud from six to twelve inches in height, thirteen inches in diameter at the bottom, and ten inches across the top—which is flat, and slightly depressed.[1] The eggs are two in number.

Up to 1890 the Flamingo flocks still visited southern Florida, near Cape Sable, and it is possible that at rare in-

[1] *Bird Lore* magazine, IV, p. 180.

tervals they still do so. Captain W. D. Collier, Marco Island, west coast of Florida, states that when he first made his home on that island, forty years ago, "Flamingoes came there every year by the thousand!" Besides those on Andros

N. Y. Zoological Park.

THE FLAMINGO.

Island in the Bahamas, Flamingoes are found in Cuba, and on the north coast of Yucatan. Until about 1906 every year from twenty to fifty live birds were brought to New York by the dealers in live animals, and sold at prices ranging from $12 to $20 each. Now the annual supply has fallen to a very low point, and in some years none arrive. When any arrive

they are all over bright red, but in captivity all gradually fade out until they are pale pink.

In all the world there are eight species of Flamingoes. While our species[1] is bright scarlet, all over, those of Europe and North Africa are almost white, with pink wing coverts. The food of this bird in captivity is dried shrimps, boiled rice and cubes of stale bread, fed in water. In a room which is warmed to 60° Fahrenheit, it can live all winter, wading half the time in water that is almost icy cold, without catching cold. The voice of this bird is fearfully and wonderfully made. It is a resonant, deep-bass, utterly unmusical "*honk*."

[1] *Phoe-ni-cop'ter-us ru'ber*. Length, 45 inches; spread of wings, 62 inches; tarsus, 12.50 inches.

CHAPTER XXXI

ORDER OF DUCKS, GEESE, AND SWANS

ANSERES

WE have now reached the first Order of a great group of birds which might well stand as a Subclass—the Web-Footed Swimmers. It embraces six different Orders, and before touching any one of them it is highly necessary that the student should take a bird's-eye view of the whole subdivision. A clear conception of these six Orders, and the characters on which they are based, will be of perpetual service to every person who desires a comprehensive view of the avian world.

THE ORDERS OF SWIMMING BIRDS

THE WEB-FOOTED BIRDS

FLYING SWIMMERS: WITH GOOD WINGS

	ORDERS
DUCKS AND GEESE (three toes webbed)	*An'se-res.*
FULLY PALMATED BIRDS (four toes webbed). Cormorants, Pelicans, Snake-Birds, etc.	*Steg-an-op'o-des.*
TUBE-NOSED SWIMMERS. Albatrosses and Petrels	*Tu-bi-na'res.*
LONG-WINGED SWIMMERS. Gulls, Terns, etc.	*Lon-gi-pen'nes.*

DIVING SWIMMERS: WITH SMALL WINGS, OR NONE FOR FLIGHT

WEAK-WINGED DIVERS. Loons, Grebes, Auks, Puffins	*Py-gop'o-des.*
FLIGHTLESS DIVERS. Penguins	*Im-pen'nes.*

This group is not only extensive, but its members show a wide diversity in form and habits, and they are fitted for life

in all climates, on waters great and small. Having before us such a host of swimming birds that six Orders are necessary to classify them, it is difficult to select only a few examples, and resolutely exclude all others. However, the student who becomes permanently acquainted with about thirty-five web-footed birds specially chosen to represent these Orders, will have a very good foundation on which to build higher, with the aid of special books and specimens.

As heretofore, we will take up the selected examples in the order in which it is easiest for the student to receive them—the highest types first—rather than in the very curious sequence adopted by the A. O. U., and most technical writers on birds.

Once a year the grand army of birds of the Order *Anseres* take wing, and sweep northward from the tropics and subtropics. Many halt in the temperate zone, where food is abundant, but many more press on to the arctic circle, and far beyond it. Wherever they pause for the summer, they nest and rear their young; and many pages might be filled with descriptions of the different kinds of nesting-sites and nests.

One would naturally suppose that in any civilized country birds in flight to their breeding grounds, or in occupancy of them, would be immune from the attacks of gunners. The need for absolute protection for birds while they are breeding, or about to breed, is so imperative that it is difficult to see how any sensible and honest person can oppose the enforcement of laws to provide it. The killing of wild fowl in spring, or at any time during their breeding season, should everywhere be made a penal offence.

During the autumn migration southward, the flocks run a

Female. Male.

THE MALLARD DUCK.

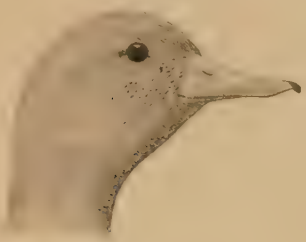
gauntlet of guns a thousand miles long. Whenever and wherever a duck or goose alights to rest and feed, the guns begin to roar. The more important migration routes, like the Atlantic coast and the Mississippi Valley, literally teem with roaring guns and flying shot, and to-day the wonder is not that the wild fowl have become "so scarce," but rather that so many have escaped slaughter! In view of the enormous annual output of new gunners, guns and ammunition, nothing but the strongest kind of public sentiment for bird protection, backed by stringent laws, rigidly enforced, can save the ducks, geese and swans of North America from becoming as extinct as the great auk and the dodo.

Even prior to 1913 about one-half of the northern states of our country prohibited spring shooting by law, but the remaining states selfishly and resolutely refused to reform, or to improve their ethics to suit the new conditions. The effect of this condition was that the wild fowl so honorably protected in spring by some states was ruthlessly and meanly slaughtered in spring by the people of the benighted states.

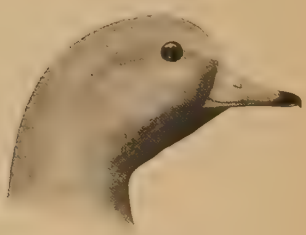
At last, in 1913, a long-desired measure placing the migratory birds under the strong protecting arm of the Federal Government was enacted into law. On October 1, 1913, the great "federal migratory bird law" went into effect; and one of its leading features provided for a complete stoppage of the shooting of game birds in spring and late winter, everywhere in the United States. The demand for this law was so overwhelming that it was passed by both houses of Congress with only a slight show of opposition, and even that was based on technical grounds.

FULVOUS TREE-DUCK.
Dendrocygna fulva.

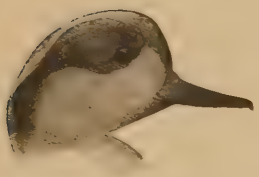
BLACK DUCK.
Anas obscura.



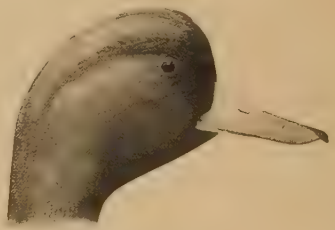
GADWALL: GRAY DUCK.
Chaulelasmus strepera.



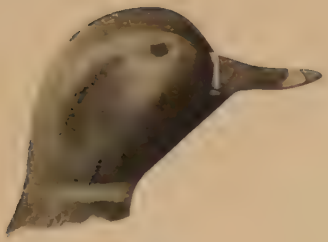
AMERICAN WIDGEON.
Mareca americana.



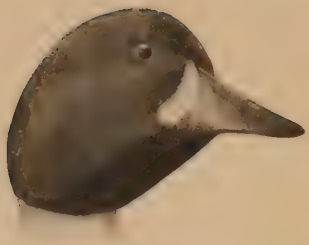
GREEN-WINGED TEAL.
Nettion carolinensis.



SCAUP DUCK.
Aythya marila.



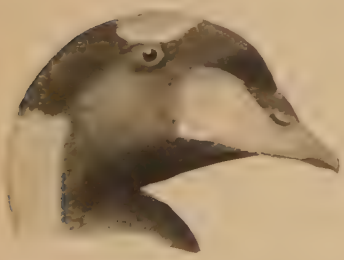
RING-NECKED DUCK.
Aythya collaris.



BARROW'S GOLDEN-EYE.
Clangula islandica.

OLD SQUAW.
Harelda hyemalis.

HARLEQUIN DUCK.
Histrionicus histrionicus.



SURF SCOTER.
Oidemia perspicillata.

AMERICAN SCOTER.
Oidemia americana.

North America is—or *was*—particularly rich in species of birds belonging to the Order *Anatidae*, and once was richly stocked with individuals. Even yet a very interesting remnant remains. Of the whole assemblage of species, great, medium and small, I think the MALLARD DUCK[1] is the highest type, and the best average. It is one of the largest ducks; it is one of the handsomest; it is strong on the wing, and highly intelligent. It is a joy unto the sportsman who finds it in its haunts, and a delight to the epicure who finds it upon the bill of fare. Sluggish indeed must be the pulse which does not beat faster at the sight of a flock of wild Mallards, free in its haunts, and ready to leap into the air and speed away at the slightest alarm.

The Mallard is recognizable by its large size, and the brilliant metallic-green head and neck and pearl-gray body of the male. The female is a very different-looking bird, of a modest brown color, streaked with black. There is only one thing at all annoying about this bird, and that is its close resemblance to our domestic duck; but for this there is a very good reason. It is the wild ancestor of all our domestic ducks, save one or two varieties.

The Mallard is found throughout the temperate zone in both the Old World and the New, and therefore it is known by many names. In England it is called the *Stock Duck*, because it was the original stock from which the domestic duck has descended. In North America its range covers practically the whole continent down to Panama, and in Asia it reaches to India. It breeds persistently throughout the

[1] *An'as bos'chas.* Average length, 22 inches.

greater portion of its immense range—in the long grass of pond margins; in the woods, between the spur roots of trees; and on the prairies, beside streams of the smallest size.

Once while collecting in Montana, late in May, I found a tiny water hole, barely ten feet in diameter, hiding in the sunken head of a very dry coulée. For miles in every direction stretched a billowy sea of sage-brush, already shimmering in the heat of early summer. As I dismounted to scramble over the edge of the bank for a drink, up rose a Mallard Duck from her nest in a thick patch of sage-brush, within a yard of my feet.

The nest was the old, familiar type—a basin of grass lined with a thick layer of down from the breast of the prospective mother, and a bunch of eggs that almost overflowed the boundaries of their resting-place. As I gazed in astonishment at this nest and its contents beside an insignificant bit of water in a landscape that certainly was not made for ducks, I understood how it is that this bird has been able to spread itself all around the northern two-thirds of the globe.

In captivity the Mallard is the best of all ducks, and the most persistent and prolific breeder. Put a flock on any pond having long grass or timber about it, keep away the rats, raccoons, mink, thieves and other vermin, and each female will do her utmost to surround herself with a downy flock of about fifteen small Mallards, regularly every summer. In the Zoological Park several nests have been built within twenty-five feet of walks that are in daily use by crowds of visitors, the immunity of their builders being due in each case to their wonderful color resemblance to the dead oak-leaves

which surrounded them, and with which they almost covered themselves.

Under the terms of the now famous "Bayne law," which was enacted in New York in 1911 and in Massachusetts in 1912, the sale of all native wild game is forbidden, except Mallard Ducks, black ducks and white-tailed deer, all of which can be reared in captivity on a commercial basis, killed for market and sold under the official tags of each of the states named. The commercial raising of Mallard Ducks should in time become an industry of some importance.

The Blue-Winged Teal[1] represents with us a group of three species which contains the smallest ducks found in North America.

Throughout its home, which embraces the whole United States east of the Rockies, and also far north and far south, it is so common—and also so small—it is not highly prized by sportsmen, and its worst enemy is the sordid market-hunter. Like the other teal, it prefers quiet, inland waters to the wide expanses that back up from the sea.

All the teal are quick risers, and also speedy on the wing; but they are rather dull of sense and easy to approach. The Blue-Wing is known by the conspicuous white crescent in front of and half-encircling the eye, and the bright-blue patch, called the "speculum," on its wing.

The Cinnamon Teal[2] is a cinnamon-brown bird of the western half of the United States, once common, but rapidly diminishing in numbers. This species is very difficult to

[1] *Quer-qued'u-la dis'cors.* Average length, 15 inches.
[2] *Quer-qued'u-la cy-an-op'ter-a.* Average length, 16 inches.

keep long in captivity, being very sensitive to all adverse influences.

The Green-Winged Teal[1] has a very noticeable crest, and a beautiful emerald-green speculum on each wing. It

BLUE-WINGED TEAL.

is found scattered over practically the whole of North America, from the Atlantic to the Pacific, and from the Barren Grounds to Cuba and Honduras.

The Shoveller,[2] also called the Spoonbill, is a handsome duck, recognizable by its extremely broad and spoon-

[1] *Net'ti-on carolinensis.* Average length, 13.50 inches.
[2] *Spat'u-la cly-pe-a'ta.* Average length, 19 inches.

shaped bill—the broadest of any American duck. The head and neck of the male are either black, or dark metallic-green; and the body colors are black, white, blue and green, handsomely disposed.

The bill of this bird shows the limit of development in width, and the comb-like lamellae along the outer edges,

Male. Female.

THE SHOVELLER DUCK.

which are designed for use in straining minute particles of food out of water, are very pronounced. These minute plates are set cross-wise at the edges of the mandibles, and perform the same function as the plates of hairy baleen, or "whalebone," in the mouth of a baleen whale. All the members of the Order *Anatidae* are provided with lamellated bills, as also are the flamingoes.

This fine duck is a bird of inland waters, and appears to dislike salt water. It is found sparingly "pretty much every-

where throughout the northern hemisphere . . . but is not common in the eastern states, and breeds from Alaska to Texas." Its flight is much like that of a teal, but less swift, and in cruising about for good feeding-grounds it is irregular and hesitating. "The body of the Shoveller is not large, and its apparent size in the air is made up chiefly of wings and head. . . . As a bird for the table, I have held it in very high esteem." (D. G. Elliot.)

In captivity this is a difficult bird to acclimatize and keep alive, which for several reasons is to be regretted. The females and immature birds are colored very differently from the adult and perfect males. The following local names of this bird have been recorded by Mr. Elliot in his "Wild Fowl of North America": Blue-Winged Shoveller, Red-Breasted Shoveller, Spoonbill "Teal," Spoonbilled "Widgeon," Broad-Bill, Broady, Swaddle-Bill and Mud Shoveller.

I regard the PINTAIL, or SPRIGTAIL,[1] as the most beautiful duck in America, not even excepting the wood duck. On land its outlines are trim, graceful and finely drawn, and on the water it makes one think of a finely modelled yacht. In beauty of form it far surpasses all other American ducks; and nowhere among wild fowl is there to be found a more charming color scheme than in the plumage of the drake. It is a harmony of delicate drabs, grays and white used to set off several pleasing shades of brown, black and iridescent green. None of the colors are gaudy or cheap-looking, and as a whole the combination of form and colors produces a bird that is in every way an exquisite creature.

[1] *Daf'i-la a-cu'ta.* Average length of male, 27 inches; female, 22 inches.

It is in recognition of its beauty that this duck is sometimes called the *Water Pheasant.* Its correct name, however, has been bestowed in honor of its seven-inch-long, finely pointed tail.

This bird ranges over nearly the whole of North America, but its favorite breeding-grounds are in the subarctic regions, particularly in the Yukon Valley, and in the lake regions of the Canadian Barren Grounds. It is equally at home on the fresh-water lakes and rivers of the interior and the salt-water inlets and channels of the Atlantic coast. The annual migration southward before the advance of snow and ice begins in September. On our Atlantic coast many of the flocks winter in the labyrinth of sounds, bays and channels that fringe the coast of Virginia and the Carolinas.

During recent years, quite a number of these birds have been caught alive near Water Lily, North Carolina, which is a locality famous for its wild ducks, geese and swans.

Fortunately the Pintail is easily acclimatized, and although not a good breeder, like the mallard, it does well in captivity, and is truly a thing of beauty, and a joy as long as it lives.

The beauty of the Wood Duck, or Summer Duck,[1] depends almost wholly upon its brilliantly colored plumage; for its form is quite commonplace. It may be wrong to make a cold-blooded analysis of its points, but for beauty of form the neck of this bird is too small and too short, its head is too large, and its body is very ordinary. Its plumage, however, presents a color scheme of brilliant reds, greens, blacks,

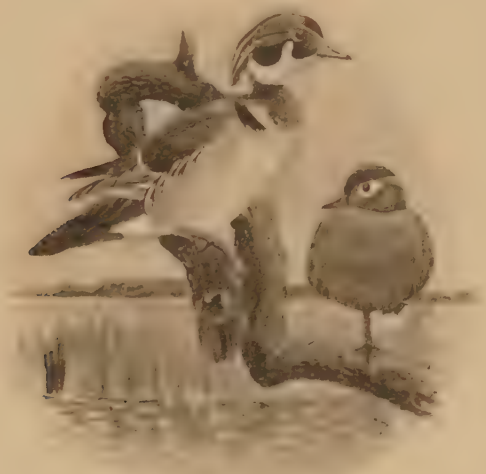
[1] *Aix spon'sa.* Average length of male, 19 inches.

Female. Male.

THE PINTAIL DUCK.

browns, yellows and whites which is quite bewildering. Even its weak little bill is colored scarlet and white, and its iris is bright red.

In my opinion the claims of the two duck species which are rivals for the prize for web-footed beauty may fairly be expressed by the following proportion:



WOOD DUCK.
Male and Female.

The Pintail is to the Wood Duck as a well-gowned American woman is to a Chinese mandarin.

The Wood Duck needs no description. Among ducks it is equalled in gorgeous colors only by its nearest relative the mandarin duck of China—a painted harlequin. Our species is a tree duck, and not only perches on trees, but also makes its nest in them, and rears its young at an elevation of from ten

to thirty or forty feet. If it be possible, the nesting-site is always above water, in order that if the ducklings finally scramble out of the nest and fall, they will alight in the water without injury, and quickly learn to swim.

In captivity the best nesting arrangement for this bird consists of a long, narrow box set on end on a stout post, well out in a pond, roofed over to keep out the rain. There must be a hole in one side, near the top, and a slanting board with cross slats reaching up to it from the water, for use as a ladder. The Wood Duck will sometimes nest on the ground, either in captivity or out. This species is being bred in captivity in England in large numbers, and also with some success in this country. Duck fanciers find no difficulty in purchasing live specimens of this interesting bird at $15 per pair, or less.

During the summer of 1902, a pair of wild Wood Ducks made daily visits to the Ducks' Aviary in the New York Zoological Park, and in the autumn of that year a small flock settled with the Wood Ducks, mallards and pintails on the Wild-fowl Pond, and remained there permanently. In the spring of 1903, a fine drake manifested a fixed determination to break into the great Flying Cage, and become a member of the happy family within. After he had flown around the cage two or three times, the keeper opened wide the wire gates at the north end, and drove him in, where he thankfully settled down, secure from the attacks of gunners, and certain of his food supply.

The Wood Duck is a bird of great discernment.

Although this bird is called the Summer Duck, and migrates far in advance of winter, it winters very comfortably

in the northern states wherever it is fed, and continuously provided with open water to keep its feet from freezing. The natural range of this species is from Hudson Bay to the Gulf of Mexico, chiefly on fresh water; but often it is found on brackish sounds and channels along the Atlantic coast where food is plentiful. Thanks to the nation-wide protection now afforded this species by the federal migratory bird law, protecting it everywhere throughout the United States, this beautiful bird will in many localities breed back again, and return to us.

Like all other wild ducks that are imperatively needed to keep the American people from starving, there remains today about one Wood Duck where formerly there were from thirty to fifty. Apparently, the only winged creatures that are too beautiful or too good to be shot and eaten are angels; but I doubt if even a white-winged seraph with webbed feet would be safe for half an hour anywhere between Cape Cod and Charleston during the autumn open season.

The Redhead Duck[1] is one of our largest and best species, and one of the most satisfactory to keep in captivity. It belongs to the same genus as the canvas-back, and in size, habits, table value and beauty it is in no sense whatever inferior to its more famous relative. When shot in the same locality, I think there is no one who could distinguish the two species by a difference in the flavor of their flesh.

In the color of their plumage the Redhead and canvas-back look so much alike that the casual observer might easily mistake one species for the other. Both have heads and necks

[1] *Ay-thy'a americana.* Average length, 19 inches.

of solid rusty brown, but the head-color of the Redhead is the more intense and conspicuous.

The head of the Redhead has a *high and well-rounded forehead and crown*, while that of the canvas-back is *wedge-shaped*, the forehead forming a *straight line with the top of the bill*. The Redhead has a short bill with a blue band across it; the other species has a long bill with no band.

THE REDHEAD DUCK.

The Redhead (like the canvas-back) feeds chiefly upon aquatic plants, like wild rice and potomogeton, but its favorite food is the vallisneria, a kind of trailing water-weed which grows in many of the inlets along the Atlantic coast.

Through countless generations of diving after food plants, the Redhead has become a deep diver. It is accustomed to seeking its food in mid-stream of deep rivers, and in the open water of lakes and sounds, where many other ducks would be quite unable to reach the bottom. Reliable lake fishermen at Lakeside, Orleans County, New York, have informed me that they have taken drowned Redhead Ducks from nets that had been set on the bottom of Lake Ontario, at a depth of *ninety feet*, where the Ducks could not possibly have become entangled save in going to the bottom for food. It

also appeared that those Ducks sought their food and became entangled only at night. It takes a bold and energetic bird to feed successfully *at night* in ninety feet of water!

Naturally, this fine bird has ever been a prime favorite with sportsmen and "market shooters," and during the past thirty years its numbers have diminished to about one-fiftieth of what they were prior to 1885. It is as easily deceived by decoys as green hunters are; and in preparing to alight the Redhead flock has a fatal habit of coming together in a manner called "bunching," which is as deadly to the birds as "close formation" is to soldiers in a modern battle.

Much more might be noted regarding this interesting bird, which must be left to the special works on birds. For many reasons it is very desirable that the Redhead should be semi-domesticated, and by protection and breeding in captivity saved from the final blotting out which otherwise may be its fate. While it does not breed in captivity as bravely as the mallard, it *can be taught* to do so, and the price at which living birds can be procured ($5 each) is so very moderate that experiments with it are not costly.

The distribution of this bird is given as "North America, breeding from California, southern Michigan and Maine northward"; but in North America there are to-day more lands and waters without this duck than with it. In addition to its best and most appropriate name it is also called *Raft Duck*, and *American Pochard*.

The Canvas-Back Duck[1] had the misfortune, early in its history, to attract the evil eye of the deadly epicure,

[1] *Ay-thy'a val-lis-ne'ri-a.* Average length, 22 inches.

whose look of approval is a blighting curse to every living creature upon which it is bestowed. Because of this, the unfortunate Canvas-Back is now little more than a bird of history. It is now rarely seen outside of museums and the zoological parks and gardens which have been so fortunate as to secure a very few specimens. Unfortunately, it has been impossible for even the most energetic duck-fanciers to secure a sufficient number of unwounded specimens to carry out the experiments necessary to determine the precise conditions under which this species will breed in captivity. No one ever sees more than two or three living Canvas-Backs together in an aviary, and thus far, I believe, none have bred.

THE CANVAS-BACK DUCK.

It is unnecessary to describe this species, for it is probable that less than one per cent of the readers hereof ever will see one wild and unlabelled. Its range was once the same as that of the redhead, and its habits also were quite similar. Its one chance of survival rests upon the integrity of the federal migratory bird law and its protection from spring and market shooting. If those two evils are stopped for all time, the succulent Canvas-Back will eventually return to us in large numbers; and already there are signs that it is trying hard to do so.

THE BUFFLE-HEAD DUCK, or BUTTER-BALL,[1] is a small, tree-nesting duck, so pretty and so very odd-looking that when seen every one wishes to know its name; and when named, it is not soon forgotten. When you see a short-bodied, plump-looking little duck, black above and white below, with a head that is a great round mass of soft feathers,

THE BUFFLE-HEAD, OR BUTTER-BALL.

half snow white, and half a rich metallic mixture of purple, violet and green—that is a Butter-Ball, and nothing else. Wherever seen, it commands instant attention.

Unfortunately, this picturesque little creature does not like our country as a summer residence, for it breeds from Maine, Iowa and British Columbia, northward, and returns to us only when snapping cold weather heralds the approach of winter. On the water it is the most nervous and watch-

[1] *Char-i-ton-et'ta al-be-o'la.* Average length, 14.50 inches.

ful duck that I know, and its habit of constantly turning from side to side is certainly in the interest of self-preservation. But after all, what is the alertness of any duck against the deadly, cold calculation of the greedy "market shooter" with a "pump" gun?

The Buffle-Head is one of the ducks that is rarely seen in captivity. A specimen that is so seriously wounded that it can be caught, usually dies a few days later. So far as I know, it has not yet been induced to breed in captivity; but that is no reason for believing that it never will. We hold that if conditions are made satisfactory, any wild species will breed in captivity. Usually it is a question of sufficient seclusion and immunity from disturbance. The range of this bird is said to include all North America, from the Arctic Ocean to Cuba. And so it does; all save those localities wherein it does *not* occur. I have strong hope that the spring protection of this species by the migratory bird law will cause it to breed in the middle zone of the United States.

The Harlequin Duck[1] is most fantastically marked. The prevailing colors of the male are dark blue, blue-black and violet, with various white collars, stripes and patches that seem to have been laid on with a paint-brush. This bird is to be looked for along the Pacific coast above Oregon to Japan, and on the Atlantic coast from Newfoundland northward. It is nowhere common, rather solitary, but frequents coastal rivers as well as the sea. As a rarity to be prized, one Harlequin is equal to twenty ducks of almost any other species in America. It is fairly common in south-

[1] *His-tri-on'i-cus his-tri-on'i-cus.* Length, 16 inches.

eastern British Columbia, and breeds in the Elk River Game Preserve.

AN OBJECT LESSON IN BIRD PROTECTION.—As a fitting conclusion to our studies of the ducks of our interior rivers, lakes and ponds, we present a remarkable instance of what bird protection can accomplish. The picture of the pond

Reproduced from *Recreation* magazine.

A HAVEN OF REFUGE.

described might well be entitled—"An Oasis in the Great American Desert of Game Destruction!" By the courtesy of Mr. G. O. Shields, we reproduce from *Recreation* magazine for June, 1903, the above illustration, and the following description by Mr. Charles C. Townsend, which appeared under the caption, "A Haven of Refuge":

One mile north of the little village of Mosca, Colorado, in San Luis Valley, lives the family of J. C. Gray. On the Gray ranch there is an artesian well which empties into a small pond about 100 feet square. This pond is never entirely frozen over and the water emptying therein is warm even during the coldest winter.

Some five years ago Mr. Gray secured a few wild-duck eggs, and hatched them under a hen. The little ducks were reared and fed on the little pond. The following spring they left the place, to return in the fall, bringing with them broods of young; also bringing other ducks to the home where protection was afforded them and plenty of good feed was provided. Each year since, the ducks have scattered in the spring to mate and rear their families, returning again with greatly increased numbers in the fall, and again bringing strangers to the haven of refuge.

I drove out to the ranch November 24, 1902, and found the little pond almost black with the birds, and was fortunate enough to secure a picture of a part of the pond while the ducks were thickly gathered thereon. Ice had formed around the edges, and this ice was covered with ducks. The water was also alive with others, which paid not the least attention to the party of strangers on the shore.

From Mr. Gray I learned that there were some 600 ducks of various kinds on the pond at that time, though it was then early for them to seek winter quarters. Later in the year, he assured me, there would be between 2,000 and 3,000 teal, mallards, canvas-backs, redheads and other varieties, all perfectly at home and fearless of danger. The family have habitually approached the pond from the house, which stands on the south side, and should any person appear on the north side of the pond the ducks immediately take fright and flight. Wheat was strewn on the ground and in the water, and the ducks waddled around us within a few inches of our feet to feed, paying not the least attention to us, or to the old house dog which walked near.

Six miles east of the ranch is San Luis Lake, to which these ducks travel almost daily while the lake is open. When they are at the lake it is impossible to approach within gunshot of the then timid birds. Some unsympathetic boys and men have learned the habit of the birds, and place themselves in hiding along the course of flight to and from the lake. Many ducks are shot in this way, but woe to the person caught firing a gun on or near the home pond. When away from home, the birds are as wild as other wild ducks and fail to recognize any members of the Gray family. While at home they follow the boys around the barn-yard, squawking for feed like so many tame ducks.

This is the greatest sight I have ever witnessed, and one that I could not believe existed until I had seen it. Certainly it is worth travelling many miles to see, and no one, after seeing it, would care to shoot birds that, when kindly treated, make such charming pets.

The Group of Eider Ducks.—The arctic and subarctic regions contain a group of about seven species of large sea-

ducks, called eiders (i'ders). The representative species are distinguished by their flat foreheads and wedge-shaped heads; by a long, wedge-shaped point of the cheek-feathers which extends forward and *divides the base of the upper mandible;* and by the possession of more or less bright-green color on the head.

On land the Eiders are heavy and clumsy birds, but on the sea they are at home, and dive with great ability. The females line their nests very liberally with down from their own breasts, and this when gathered and utilized becomes the well-known "eider-down" of commerce. Unfortunately, the natives of arctic America are unable to make use of eider-down, save on the skin, and this leads to the slaughter of great numbers of the birds.

Eiders nest on the tops of rocky islets, using sea-weed or grass for a foundation, and covering this with down plucked from their own breasts. So abundantly is the nest lined that by the time the eggs are all deposited they are fairly embedded in the softest of beds. In Iceland the eider ducks are half domesticated. The inhabitants collect the down from the nests for sale, and therefore they are much interested in preserving the birds. Nesting-places are made for the birds by building thick stone walls with spacious crevices along each side, at the base, or by scooping out shallow cavities in the hard earth. The Eiders permit their human friends to go among them, and even to handle their eggs.

On the Atlantic coast, from Labrador to Delaware, in winter we have the American Eider,[1] which appears to be the

[1] *So-ma-te'ri-a dres'ser-i.* Length, about 23 inches.

best type for the Eider Group. Fortunately for our chances of close acquaintance with it, this species occasionally penetrates westward along the great lakes to Illinois and Wisconsin —a very unusual proceeding for a sea duck. Any bird which

AMERICAN EIDER.

will go so far out of its natural range in order to become acquainted with interocean Americans surely is worth knowing. Moreover, the Eider Duck of the Old World so closely resembles this bird in all essential details that to know one species is to know the other also.

The colors of this bird are black and white, as shown in the illustration, except that the nape and the rear portion of the region around the ear are sea-green, and the tail and

the primaries are pale brown. The bill and feet are olive-green.

The Spectacled Eider,[1] of northwestern Alaska, is a bird easily remembered by its name, and the large, white spot around each eye which at once suggests a pair of spectacles. This bird is limited to our arctic territory, and is said, by Mr. E. W. Nelson, to be threatened with extinction by man at no very distant day. Our occupation of Alaska, after the Russians, has led to the arming of the natives with modern rifles and shotguns, before which wild life generally is rapidly being swept out of existence.

The White-Winged Scoter[2] (sko'ter) quite acceptably represents a group of sea ducks and deep divers, called scoters, and of which there are three species resident in North America. These are the blackest of all our ducks. The species known as the American Scoter is glossy black throughout, without a single patch of color save the bright orange-yellow which colors the basal half of the bill and its knob.

The White-Winged species has a white patch on each wing, technically known as a "speculum," and a white patch of variable shape under or in rear of the eye. Above and in rear of the nostrils the bill and skull together are raised into a conspicuous hump, half covered by feathers.

Like all the scoters, this bird is a fish-eating duck, and its flesh is so fishy in flavor it is not considered fit for the table. It is widely distributed throughout North America down to southern California, northern Missouri, Illinois and Mary-

[1] *Arc-ton-et'ta fisch'er-i.* Length, about 21 inches.
[2] *Oi-de'mi-a deg-land'i.* Average length, 21 inches.

land. Like most of our ducks, it breeds in the Far North, and returns to us only for the winter. It is a deep and persistent diver, and it is said that when wounded and pursued it will sometimes dive to the bottom, even fifty feet if necessary, seize a bunch of grass or weeds with its bill and hold on until it has quite drowned. Its food consists of fish, crustaceans and mollusks.

The Red-Breasted Merganser[1] bravely and handsomely represents what is structurally the lowest group of ducks, known as the Mer-gan'sers, embracing three species. The bill of this bird is long, narrow and set along the edges with lamellae that look quite like sharp teeth—a most admirable arrangement for seizing fish under water. The bill of a Merganser always reminds me of two things: the jaws of the gavial, or Gangetic crocodile, and Professor Marsh's toothed bird, the Hes-per-or'nis, from the great extinct inland sea of the middle West. One of the common names of this bird is the *Saw-Bill;* and it is peculiarly appropriate. Among other ducks this fine bird has the bold, confident air of a born freebooter. The back of its head is ornamented with several long feathers which form a crest, like the war-bonnet of a Sioux Indian. The whole head and upper neck are black, with green and purple reflections. Around the middle of the neck is a conspicuous white collar, and under that is the pale rusty-red breast, streaked with black, which gives the bird its name.

This sea-going bird-craft is at home—under many names—in both the Old World and the New. On our continent it

[1] *Mer-gan'ser ser-ra'tor.* Average length, 22 inches.

Female. Male.

RED BREASTED MERGANSER.

breeds from our northern states as far as the Aleutian Islands and western Alaska, where the Aleuts prize it for food above all other ducks. In winter it migrates along our two ocean coasts to southern California and Florida. It feeds entirely on fish, and the flavor of its flesh is rank and disagreeable.

Nearly all sportsmen admire this duck, and it is much to be regretted that it is so shy and nervous, and difficult to keep alive in captivity. A fine specimen which we cherished for a time in the Flying Cage of the New York Zoological Park, along with many other water-birds of good size, at first seemed inclined to accept the situation, and become acclimatized; but it lived only two months. With several Mergansers together, the result might be more satisfactory.

The Hooded Merganser[1] is distinctly marked by a striking, black-and-white semicircular crest of great height, standing stiffly erect, and jaunty beyond compare among water-fowl. By that crest and the slender Merganser bill any one may know this bird out of ten thousand species, whether seen in New York or New Zealand. It ranges all over North America, wherever there is water enough to float it, down to Mexico and Cuba, and as a result it has been burdened with an appalling collection of names. It nests in hollow trees, near good fishing-grounds, and whenever it makes its summer camp near a trout stream, the fry fare badly.

The Geese. Those who have not looked into the subject usually are surprised to find what a fine collection of geese is found in North America. The continent is so large

[1] *Lo-phod'y-tes cu-cul-la'tus.* Average length, 17 inches.

it requires an effort to come in touch with representatives of all the species of wild geese which inhabit it. While they are somewhat lacking in the fine coloring that characterizes a few foreign species, such as the spur-winged goose of Africa, they form, as a whole, a highly interesting group, well worth the acquaintance of all Americans save the market hunters, and others who shoot not wisely but too well.

Fortunately for those who live where wild geese dare not show themselves for fear of being killed, all these species take kindly to captivity, and are easily kept in parks and zoological gardens. In 1914 five species were living quite contentedly in the New York Zoological Park.

In writing of geese, we would not think of mentioning any species ahead of our old favorite and most faithful friend, the CANADA GOOSE.[1] Where is the country dweller who has not heard, far aloft, the well-known trumpet "Honk," and the prompt answers all down the two lines as the V-shaped flock winged swiftly forward? In the raw, windy days at winter's end, from the Gulf to Hudson Bay, the old gander's cry is accepted as a guarantee of spring, and hailed with joy. Dull, indeed, is the mind that is not moved to wonder and admiration by the remarkable V-formation in which the wild-goose flock cleaves the air.

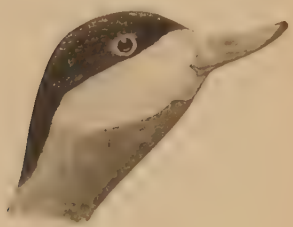
Although wild geese in transit through the Mississippi Valley frequently alighted in corn-fields to rest and feed, as a rule they were so wary and wide-awake it was next to impossible to bag one. In Minnesota and the Dakotas, however,

[1] *Bran'ta canadensis.* Average length, about 35 inches; but individuals vary greatly in size.

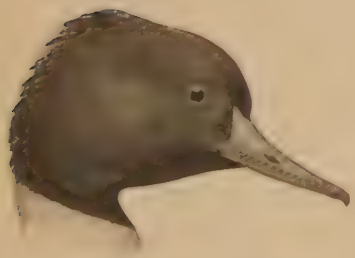
KING EIDER.
Somateria spectabilis.

SPECTACLED EIDER.
Arctonetta fischeri.

STELLER'S DUCK.
Eniconetta stelleri.



RUDDY DUCK.
Erismatura jamaicensis.



AMERICAN MERGANSER.
Merganser americanus.

HOODED MERGANSER.
Lophodytes cucullatus

they often flocked on the ground in such numbers that goose-shooting was as regular a sport as chicken-shooting, and during a brief period of slaughter yielded weighty results. Thousands of geese alighting in corn-fields to feed have been shot from the interior of innocent-looking corn-shocks.

The Canada Goose is not only the largest of the wild geese of North America, but also the most important and valuable member of the group. There are times, also, when it seems to be the most savory bird that finds its way to the platter. One of those times was when a flock alighted near our camp, on the ice of the Musselshell, in Montana, the day before a certain whizzing cold Thanksgiving, and a fat young gander was shot, and beautifully roasted over the camp-fire in a large Dutch oven.

In captivity the Canada Goose is an all-around philosopher; and even when wild, he often knows a good thing when he sees it. In October, 1901, a flock of nine geese flying southward over the New York Zoological Park suddenly espied our flock of the same species on the wild-fowl pond. Without a moment's hesitation, the wild birds sailed down and alighted on the shore beside their relatives, and invited themselves to the banquet of cracked corn.

On the following day Mr. H. R. Mitchell coaxed seven of the visitors into a huge wire cage that was set up on the shore, where they were caught and wing-clipped to prevent further wandering into danger. The seven remained with us; but the two unclipped birds, after remaining all winter, flew away north the following spring, and it is quite likely that their bad judgment has ere now cost them their lives.

Apparently all the North American geese are almost as easy to keep in captivity as domestic geese. Their favorite food is cracked corn and whole wheat, but they will eat almost any kind of grain. In winter they require low shelter coops, open toward the south; and a small portion of their

CANADA GOOSE.

pond must be kept open all winter, by frequently removing the ice, to keep their feet from freezing. Not all these birds, however, care to seek shelter in a humble coop.

The Canada Goose is known by its large size and its jet-black head and neck, with a conspicuous white crescent encircling the throat. The black on the neck ends abruptly where the neck joins the body, and the general tone of the

latter is gray-brown. Its neck is longer, and also more slender, as a rule, than those of other wild geese.

This fine bird winters in Texas, along the Gulf of Mexico, and in the sounds and bays of Virginia and the Carolinas, and goes north early in spring. Its nesting-grounds begin in our northern tier of states, and extend northward to Labrador, the Barren Grounds and Alaska. Throughout much of that vast area, the shotguns and rifles are ever ready, and the number of geese that still survive are eloquent testimony to the wariness, the keenness of vision and the good judgment of this much-prized bird. A bird of equal desirability, but with a dull brain and poor vision, would have been exterminated long ago.

One of the most interesting things about the Canada Goose is the energy and courage of the male in defending the female on her nest. Recently two of our geese paired off as usual, and built a nest on the south bank of the wild-fowl pond, in a very exposed situation. From that time until the young were hatched, the gander never once wandered from his post. It was his rule never to go more than sixty feet from the nest, and whenever any one approached it, he immediately hastened to intercept the intruder, hissing and threatening with his wings in a most truculent manner. Had any one persisted in disturbing the female, he would willingly, and even cheerfully, have shed his blood in her defence. His unswerving devotion to his duty attracted the admiring attention of thousands of visitors, and the proudest day of his life was when the first live gosling was led to the water, and launched with appropriate ceremonies.

There are three subspecies of the Canada Goose, all smaller, but otherwise very similar. The White-Cheeked Goose inhabits the Pacific coast, north to Sitka; and the Cackling Goose is found in the same region, and on up to the Yukon. Hutchin's Goose is merely a small edition of the Canada.

The Black Brant[1] is a very distinct bird, noticeably smaller than the Canada goose, and readily recognized by its blackness and its small size. Its head, neck and breast are entirely black, save for a white collar going two-thirds of the way around the upper neck. The black of the neck does not end abruptly at the shoulders, but spreads back over the back and under-parts until the final effect is that of a bird which is two-thirds black.

Although this bird is generally accounted rare on the Atlantic coast, the New York Zoological Society has secured many fine living specimens from Currituck Sound, on the coast of North Carolina. Beyond doubt, however, it is rare everywhere in the eastern United States. It is remarkable for the fact that it migrates northward not only to the desolate shores of the Arctic Ocean, but far beyond, and must nest and rear its young far out on the great polar ice-pack.

The Brant Goose[2] is quite a different species from the preceding. The black of its neck ends abruptly at the shoulders, and the white collar is a mere broken patch, without decided character. The body is everywhere much lighter than the color of the black brant, with which this species is often confounded, because the two are often found together,

[1] *Bran'ta ni'gri-cans.* Average length, about 24 inches.
[2] *Bran'ta ber'ni-cla.*

though not on the Pacific coast. Once the Brant Goose was plentiful along the Atlantic side, but it is now rare, and fast disappearing.

The American White-Fronted Goose[1] is, in my opinion, the most handsomely colored goose we possess. Contrary to expectations that are often based upon its name, it has not a white breast, nor white shoulders. It white "front" is limited to an inch-wide frill of white immediately surrounding *the base of its bill.*

Other than this the head and the neck are dark brown, and the back, sides, breast and abdomen are covered with a scale-like arrangement of feathers that are various shades of brown or black, strongly edged with white or gray. The effect of the white edges of the feathers is to bring out in strong relief the immaculate arrangement of the plumage, and as a whole the bird is decidedly beautiful.

This fine bird is even yet abundant on the Pacific coast, from southern California to Alaska, where it crosses over to the Asiatic side. It appears that Alaska is its favorite nesting-ground. On the Atlantic coast it is no longer seen. The specimens living in the Zoological Park were taken in southern Texas, on the Rio Grande, where the species is yet a winter visitant.

The Snow Goose[2] is, excepting its large wing-feathers (the primaries), an all-white bird. Based on the tape line, two species have been described and recognized by ornithologists, the "Greater" Snow Goose and the "Lesser." If

[1] *An'ser al'bi-frons gam'bel-i.* Average length, 28 inches.
[2] *Chen hy-per-bo're-a.* Average length, about 30 inches.

the specimen under the tape is a large one, it is the former species; but if it is smaller than the average, it is booked as the "Lesser." Obviously, the wisest course is to discard both adjectives of size, and recognize the Snow Goose only, be it more or less.

This easily recognized bird, like the majority of our other wild geese and ducks, wanders over almost the whole of the well-watered portion of North America down to Cuba and Mexico; but where the guns of civilization are most numerous it is now a rare and lonesome bird. To-day it is more abundant —or, it were better to say, *less scarce*—in the Mississippi Valley, Texas, and the Pacific states than elsewhere. Where they were permitted to do so, these birds often assembled in large flocks, and often made themselves conspicuous around the prairie ponds of the Dakotas and Minnesota. When you are travelling over the Northern Pacific Railway, or the Great Northern, and see on the smooth prairie a flock of rather large white birds, it is safe to declare that they are Snow Geese.

THE SWANS.—Last of the Order of Ducks, and farthest from the type of the Order, are the Swans. Although two species are recognized, the difference between them is not always visible to the naked eye.

THE TRUMPETER SWAN[1] is one of our largest birds, and considering its great size it is strange that it has not been exterminated ere this. Its existence speaks highly for its wariness. Formerly specimens were purchasable at from $20

[1] *O'lor buc-cin-a'tor.* Length, 4 feet 8 inches; height, when standing erect, 3 feet 9 inches; expanse of wings, 7 feet 10 inches; weight, 22 pounds.

to $30 each, and the majority of them came from Texas and the plains region. To my mind, this is the least attractive of all the large swimming birds, and it certainly is one of the most pugnacious and quarrelsome. In captivity Trumpeter Swans always wish to do the wrong thing. Even when policy demands that they at least appear friendly, they are always truculently hissing at and threatening their human neighbors, friends as well as enemies. This Swan's voice is like a short blast on a French horn, but when a large flock rises from a pond in a wilderness, and gets fairly under way, the chorus given forth on such occasions I know to be thrillingly musical.

With birds smaller than themselves, Swans often are so quarrelsome and murderous they require to be separated, and yarded by themselves.

On level ground the Swan is the most ungainly of all the American members of the Order of Ducks; and even afloat its bows lie much too deep in the water.

The central line of migration and distribution of this species is the western boundary of the states forming the western bank of the Mississippi. It breeds from Iowa northward to the Barren Grounds, and in the United States straggles eastward and westward to both shores of the continent. I have seen specimens taken in 1885 in the Potomac River, and it has often been observed near Los Angeles, southern California.

For at least ten years we have regarded the Trumpeter Swan as one of the next candidates for oblivion, through gunner's extermination, and have cherished accordingly two

N. Y. Zoological Park.

TRUMPETER SWANS.

fine specimens that we acquired in 1900. Seven years ago this species was regarded as so nearly extinct that a doubting ornithological club of Boston refused to believe, on hearsay evidence, in the existence of our specimens. A committee was appointed to interview the birds and report its findings. Even at that time Trumpeter Swan skins were worth from $100 to $150 each; and when swan skins sell at either of those figures it is because there are people who believe that the species either is on the verge of extinction or has passed it. Since that time Dr. L. C. Sanford, of New Haven, has secured (1910) two other living birds, from the coast of Virginia. We have done our utmost to induce our pair to breed and rear young, but thus far without success.

The loss of the Trumpeter Swan from our bird fauna will not be so keenly felt as the loss of the whooping crane. Its twin species, the *Whistling Swan*, so closely resembles the Trumpeter that only a close observer can detect the difference—a yellow spot on the side of the former's upper mandible, near its base. The Whistler yet remains in fair numbers, and possibly the new federal migratory bird law may save it from quick extinction.

Thus far only one naturalist (so far as we know) ever has heard the "Song of the Dying Swan." Mr. D. G. Elliot, in "Wild Fowl of North America," records the following interesting observation:

> Once, when shooting in Currituck Sound, . . . a number of Swan passed over us at a considerable height. We fired at them, and one splendid bird was mortally hurt. On receiving his wound the wings became fixed, and he commenced at once his song, which was continued until the water was reached, nearly half a mile away. I am perfectly familiar with

every note a Swan is accustomed to utter, but never before nor since have I heard any like those sung by this stricken bird. Most plaintive in character, and musical in tone, it sounded at times like the soft running of the notes in an octave.

The Whistling Swan[1] is accorded rank as a species chiefly on the strength of a small yellow patch on the base of the bill—which is not always present! Young Swans of both species are of a dirty-gray color—not white; but the plumage of the adult bird is perfectly white. The bill and feet are jet black.

[1] *O'lor co-lum-bi-an'us.*

CHAPTER XXXII

ORDER OF FULLY WEB-FOOTED BIRDS

STEGANOPODES

TO recognize a member of this Order, look at its foot, and see that the web of the three large toes *is also united to the fourth, or rear toe.* This may seem like a small peg on which to hang an Order; but it is a very useful one, nevertheless. As usual, the best and most conspicuous examples will be mentioned first. The Families are as follows:

ORDER STEGANOPODES

FAMILIES		EXAMPLES
PELICANS	*Pel-e-can'i-dae*	Brown Pelican; White Pelican.
CORMORANTS	*Phal-a-cro-co-rac'i-dae*	Common Cormorant.
DARTERS	*An-hing'i-dae*	Darter, or Snake-Bird.
GANNETS	*Su'li-dae*	Common Gannet.
MAN-O'-WAR BIRDS	*Fre-gat'i-dae*	Frigate Bird.

THE PELICAN FAMILY

Pelecanidae

THE BROWN PELICAN[1] is known to every tourist who knows Florida thoroughly, or southern California. Somehow this bird appeals to every one—possibly by reason of its cheerful confidence in man—and for a wonder it has not been exterminated. It takes to captivity not only willingly, but

[1] *Pel-e-ca'nus fus'cus.* Length, 49 inches; spread of wings, 6 feet 9.50 inches.

gladly, and its motto is, "All's fish that cometh to net." It is an amiable bird, sociable to an unlimited degree, harms no one and makes no enemies, save in Texas, where the fish-destroying fishermen wish the Pelicans slaughtered because they eat fish and can't pick cotton.

Pelican Island, in Indian River, Brevard County, Florida, is the most interesting sight in the land of flowers. On an area of about three acres, raised only two or three feet above high-water mark, destitute of trees because the Pelicans have nested them to death, live about 3,000 Brown Pelicans, and each year they make about 1,500 nests. During every breeding-season they inhabit that islet, nesting in small nests of grass plucked on the spot, and arranged on the ground. The few dead mangroves that still stand are loaded with stick-made nests to the point of breaking down.

Egg-laying begins about the 1st of February, and straggles along until the end of May. By March 15 the breeding-grounds contain, in close proximity, unfinished nests and nests with fresh eggs (usually three); young just out of the shell; half-grown young; and, finally, full-grown young. The latter are great hulking babies, as large as their parents, but covered all over with down as white as cotton.

It is no uncommon thing for a young Pelican to have from three to five mullet in its neck and crop at one time, as we have discovered by catching some of them with a search-warrant, and searching their premises.

To feed these hungry pouches, the old birds fly about fifteen miles up the coast to fishing-grounds where silver mullet are plentiful and cheap; and there each old bird fills

Photographed by C. William Beebe. From the *Zoological Society Bulletin.*

FLORIDA BROWN PELICANS, ON PELICAN ISLAND.

its neck and crop with from six to nine fish, each from seven to ten inches in length. At evening, just before sunset, in groups of from three to seven they slowly wing their way back along the beach, flying low over the saw palmettos that fringe the shore. They give about six wing-beats, then sail as far as possible, each little company winging in unison. Several times I have lain low in the palmettos, to watch their flight at a distance of only a few feet as they approached and passed over me.

Truly they are fine birds—rich in coloring, remarkably odd in form and very well set up. Unfortunately they do not acquire their full colors until in their third year. The neck of the adult bird is in two colors, rich blackish brown and white, and the back is a beautiful silvery gray-brown effect, composed of many tints. The top of the head of the adult bird is yellow. The bill is a foot long, the pouch is of a bluish-purple color, and calls for about four pounds of fish daily.

It is very interesting to watch Pelicans fishing. On calm days when the surface of Indian River is like a mirror, the eruption of silvery spray that rises high when the big bird plunges into the water attracts attention at a distance of two or three miles. It is finest, however, to see them fishing in the breakers on the ocean side of the Indian River Peninsula, about 200 feet from shore. They sail along so near the water it seems a wonder that they do not strike it; but they rise over the incoming waves, and lower again into the trough with the utmost precision, always keenly alert. All of a sudden the wings are thrown out of gear, and a fountain of

flying spray tells the story of the plunge with open pouch for the luckless fish.

For several years the fate of the great Pelican colony in Indian River remained in doubt, and its preservation was due more to public sentiment in Brevard County than to the arm of the law. In 1903, however, Pelican Island was formally declared to be a Government reservation, and placed under the absolute control of the Biological Survey, thus insuring the permanent protection of its occupants. Among the islands of the west coast of Florida this Pelican is even now (1914) the most conspicuous bird. In 1913 a pair nested in the Flying Cage of the New York Zoological Park, and reared a fine, new Pelican, and two pairs nested there in the spring of 1914.

The California Brown Pelican[1] so closely resembles the Florida species that the differences between the two are not easily recognized. The accompanying illustration is from a photograph taken on the Galapagos Islands, directly under the Equator; and from that locality this species ranges northward along the Pacific coast to British Columbia.

The Great White Pelican[2] is a grand bird—big, clean, immaculate, and with the dignity of a newly appointed judge. About him there are two bad things. In captivity his appetite for fresh fish makes him a costly luxury, and his Latin name always frightens timid people.

The curious horn seen in winter and spring atop of the bill of this bird is purely a sexual ornament, found only on

[1] *Pel-e-ca'nus californicus.*

[2] *Pel-e-ca'nus er-yth-ro-rhyn'chos.* Length, 61 inches; spread of wings, 8 feet 10 inches; weight, 16.50 pounds.

Photographed by R. J. Beck. Galapagos Islands.

CALIFORNIA BROWN PELICAN.

the male in the breeding-season, after which it drops off. It begins to grow about February 15, is perfect by May 1, and drops off not later than July 1.

To-day, as a matter of course, the Great White Pelican is a rare bird. On the west coast of Florida it is even yet

N. Y. Zoological Park.

GREAT WHITE PELICAN.

occasionally seen. We saw three at Marco Island, in January, 1914. It is yet found inland in certain western localities, where there are lakes large enough to shelter it and supply it with fish, and it is to be hoped that it will be many years ere this grand bird is exterminated. Fortunately, a colony has become established on an island in Yellowstone Lake, in

the Yellowstone Park, where it breeds regularly every summer, to the great delight of all tourists who care for the sight of what is called a "pelicanery." In winter southern Texas is the haven for this bird, as well as for so many other swimming birds, but the fishermen are determined to secure a law providing for its extermination.

THE CORMORANT FAMILY

Phalacrocoracidae

The Cormorant[1] is to me a most uninteresting bird. Month in and month out I have seen them perching, and perching—on spar buoys in harbors, on mud-bank stakes, and on dead trees alongshore and up-stream. For days together have Cormorants fled up-stream before my boat, yet never once have I seen a wild Cormorant do an interesting thing. Instead of getting out and hustling for fish, like the pelican, or taking delight in architecture, like the osprey, the Cormorant tiresomely perches, and waits, Micawber-like, for something to turn up.

In captivity it does better. In our Flying-Cage pool, the Cormorants play with sticks, and dive for amusement, more than any other bird, except the brown pelican. In fact, it seems like a different creature from the wild bird.

The Cormorant is, in general terms, a dull black bird, wholly devoid of colored plumage. Its range is given as "coasts of the North Atlantic, south in winter on the coast of the United States, casually, to the Carolinas." It lives upon fish, and wanders inland much farther than might be supposed.

[1] *Phal-a-cro-co'rax car'bo.* Average length, 34 inches.

THE CORMORANT.

The Double-Crested Cormorant[1] is a bird of the interior of the United States, from Texas northward into Manitoba, but also ranging to the Atlantic coast. Its color is glossy black. On the Pacific coast, from Washington to Alaska, is found the Pelagic Cormorant,[2] with an erect crest rising from its forehead, and by which this bird is easily recognized.

Pallas's Cormorant, which once inhabited the northern shore of Bering Sea, was the largest and handsomest bird of this Family. Its prevailing color was dark metallic-green, set off with blue and purple reflections. It was discovered by Bering in 1741, but is now quite extinct.

THE DARTER FAMILY

Anhingidae

The Snake-Bird, Darter, or Water-"Turkey,"[3] is a web-footed bird, with many peculiarities. Its most popular name—Snake-Bird—has been bestowed in recognition of the fact that in this bird the neck and head are so long and slender they suggest the body and head of a snake. When not in action the head and upper neck are only an inch in diameter, yet so rubber-like is the skin that I have seen a Darter swallow a mullet 8 inches long, and 1½ inches in diameter—a truly snake-like stretch. Frequently when the head of a fish is in this bird's crop, the tail fin will protrude from a corner of the mouth.

The beak is like a Spanish dagger, and at all times it is

[1] *P. di-lo'phus.* [2] *P. pe-lag'i-cus.*
[3] *An-hin'ga an-hin'ga.* Average length, 33 inches.

decidedly a dangerous weapon. One well-aimed stroke is enough to stab any ordinary bird to death, or destroy an eye. In a cageful of Darters the presence of a quarrelsome bird is usually made known by the dead body of a cagemate that has been foully murdered.

In its home the habits of the Snake-Bird interested me greatly. Almost invariably it perches on a dead tree, or a branch which overhangs water, preferably a small running stream. Its neighbors are the two white egrets, the Louisiana and little blue herons, and an occasional black vulture. Seldom indeed is one of these birds found swimming in the water, but Mr. C. E. Jackson once very dexterously speared one from his boat, as it was diving under him.

When your boat approaches a Snake-Bird and crosses his danger-line, the bird slides off its perch, falls straight down, and sinks out of sight. It goes down head erect, and "all standing," as if weighted with a bag of shot. This is the queerest of all bird ways in diving. If you halt, and watch sharply for the bird to reappear at the surface, for three or four minutes you will see nothing.

At the end of a long wait you will notice a sharp-pointed stick, half as long as an adult lead-pencil, sticking up out of the water. It looks so queer you watch it sharply. Presently you see the point of it turn a few degrees; and then you discover a beady black eye watching you. It is one of the neatest hiding-tricks practised by any water-bird I know.

The Snake-Bird has the power to submerge its body at any depth it chooses, and remain for any reasonable length of time. It is a very expert diver, and the manner in which

it can pursue and capture live fish under water is enough to strike terror to the hearts of finny folk. The bird swims with a sharp kink in its neck, driving forward by powerful strokes

SNAKE-BIRD.

of its cup-shaped feet. On overtaking a fish the kink in its neck flies straight, and like the stab of a swift dagger the finny victim is transfixed. Then the bird rises to the surface — for it is unable to swallow its food under water — tosses the fish into the air, catches it head first and in an instant it is gone.

In the United States this bird is most at home in the rivers and creeks of southern and central Florida, but it is also found farther west, along the Gulf. It is abundant in the delta of the Orinoco, in the Guianas and farther south. It lives well in captivity, and when provided with a large glass tank is quite willing to give daily exhibitions in diving after live fish. In color the adult male is a glossy-black bird, and so is the female, except that her entire neck is light brown.

THE GANNET FAMILY

Sulidae

The Common Gannet[1] is, in many respects, a bird of very striking appearance. It is a goose-like bird, as large as a medium-sized goose, and its prevailing colors are white and a very beautiful ecru. Its plumage is as smooth and immaculate as the surface of a wooden decoy. It has a slow and solemn manner, and has the least suspicion of man of any swimming bird I know. Its head, neck and bill are massive, the latter especially being long and very thick at the base. The total length of this bird when adult is only a trifle under three feet.

Although the Common Gannet is strictly a bird of the ocean coasts, and apparently never is seen inland, it is a bird of such striking personality it well deserves to be introduced in these pages. Any large bird which once existed in countless thousands on our coast, and has not yet been exterminated, may well be known to every intelligent American.

[1] *Su'la bas-sa'na.*

Although the Gannet wanders as far south as Long Island, its real home is where it breeds. "While there are many points along the coast from Maine to Labrador where the Gannets might breed, they are found, so far as I have been able to ascertain, only at three places, an island in the Bay of Fundy, the Bird Rocks near the geographical centre of the Gulf of St. Lawrence and Bonaventure Island, at Percé, Canada, the colony at Mingan being too small and too nearly exterminated to be taken into consideration." (Frederic A. Lucas.)

In 1860 Dr. Bryant estimated the total number of Gannets on the Bird Rocks at 150,000.

In 1872 Mr. William Brewster estimated the number then living there at 50,000.

In 1887 Dr. Lucas found not a single Gannet nesting on Little Bird Rock, and not over 10,000 on Great Rock.

Although the Gannets, and other sea-birds, make their homes on the most inaccessible spots they can find, there is no bird which man cannot reach with a gun, no nest to which he cannot climb, or be lowered at the end of a rope.

Sea-birds everywhere are persecuted by man, either for their eggs or for themselves. In their breeding-season the Gannets are continually visited by Indians and whites, who take their eggs. "Scarce a day passes," says Dr. Lucas, "without a visit from fishermen in search of eggs, or murres. Many barrels of eggs are gathered during the season, and altogether the birds lead a rather precarious existence. There is a law regulating the taking of eggs, and if this were observed, or could be strictly enforced, a large number of eggs

could be gathered annually, while at the same time the number of birds would steadily increase."

As will be inferred, the Gannet lives wholly upon fish, and is an expert deep-water diver. In his report on his "Explorations in Newfoundland and Labrador," Dr. Lucas gives the following interesting account:

> While lying at Grindstone Island we first made the acquaintance of the Gannets, whose headquarters are at Bird Rocks, and had a good opportunity to watch them fishing. The birds are usually associated in small, straggling flocks, and, with outstretched necks, and eyes ever on the lookout for fish, they fly at a height of from 75 to 100 feet above the water, or occasionally somewhat more. The height at which the Gannet flies above the water is proportioned to the depth at which the fish are swimming beneath, and Captain Collins tells me that when fish are swimming near the surface, the Gannet flies very low, and darts obliquely instead of vertically upon its prey.
>
> Should any finny game be seen within range, down goes the Gannet headlong, the nearly closed wings being used to guide the living arrow in its downward flight. Just above the surface, the wings are firmly closed, and a small splash of spray shows where the winged fisher cleaves the water to transfix his prey. Disappearing for a few seconds, the bird reappears, rests for a moment on the water, long enough to swallow his catch, then rises in pursuit of other game. The appetite of the Gannet is limited only by the capacity of its stomach, and a successful fisher may frequently be seen resting on the water, too heavily laden to rise without disgorging a part of its cargo, which it sometimes must do to escape from the pathway of an approaching vessel.

Any person who is accustomed to diving, even from a very moderate height, knows well the serious disturbance to vision caused by the shock of impact with the water. That a Gannet—or any other bird—can fall from even a height of twenty-five feet, saying nothing of a hundred, take the water plunge, and *retain its gaze* upon its prey sufficiently to follow and capture it, surely betokens a special optical provision

which as yet we know nothing about, and which remains to be discovered and described.

Besides the species described above, there are five other species of gannets, called BOOBYS, with various prefixes, which touch the coasts of the continent of North America.

Photograph by R. J. Beck. Galapagos Islands.

MAN-O'-WAR BIRDS.

THE MAN-O'-WAR BIRD FAMILY

Fregatidae

Whenever at sea in the tropics your attention is arrested by the flight far aloft of a big, dark-colored bird with long, sharp-pointed wings, and a *long tail* that is *deeply forked*, know that it is a FRIGATE BIRD,[1] or, as the sailors call it, MAN-O'-WAR "HAWK." It is a long-distance flier, and goes out far

[1] *Fre-ga'ta a'quil-a.* Length, about 40 inches.

from land. Its beak is long, hooked at the end, and really very strong, but its legs are so short and stumpy they seem to be deformed. Under the throat there is a patch of skin quite devoid of feathers, which really is a sort of air-sac.

I once found the roosting-place of a colony of about forty of these birds, on the top of a perpendicular cliff seventy-five feet high on the seaward side of an island at the northwestern point of Trinidad. The birds came there regularly every night, to roost in some small dead trees that almost overhung the precipices. They were not nesting at that time, however, and were so very wakeful that even though I went to their roost before daylight, I did not succeed in killing even one bird.

This bird inhabits the warm oceans of the Old World, as well as the New, and Mr. H. O. Forbes states that in the Cocos-Keeling Islands they are regular pirates, and gain their livelihood by remaining inactive, and forcing honest fisherfolk, like the gannets, and noddy terns, to disgorge for their lazy benefit the fish they bring home from distant fishing-grounds.

Mr. R. J. Beck found Frigate Birds nesting in the Galapagos Archipelago, which were so tame and unsuspicious that he was able to approach quite near, and make the photograph which is reproduced on the preceding page.

CHAPTER XXXIII

ORDER OF TUBE-NOSED SWIMMERS OF MID-OCEAN

TUBINARES

THESE are indeed strange birds. To a landsman, it requires an effort to imagine a series of birds, some of them small and seemingly weak, which prefer to live in the watery solitudes of mid-ocean, indifferent to calms, and defying both tempests and cold. To my mind, there is no section of the bird world so strange and so awe-inspiring as this. Just how the albatrosses and the petrels ride out the long, fierce gales, and keep from being beaten down to the raging surface of the sea, and drowned, I believe no one can say. It is no wonder that sailors hold the albatross in superstitious reverence, or that Coleridge has immortalized it in the "Rime of the Ancient Mariner." Well may a sailor feel that any large bird which lives only at sea, and follows his ship day after day, is the bird "that makes the breezes blow."

The members of this small group of mid-ocean birds are distinguished by the curious fact that the nostrils, instead of opening through the side of the upper mandible, near its base, are *carried well forward through two round tubes* that either lie along the top of the bill or along its sides. By this

arrangement, the nostril opening is about half-way between the base and tip of the bill. The bill terminates in a strong serviceable hook, like the beak of a bird of prey.

This Order consists of the albatrosses, fulmars, shearwaters and petrels—all of them deep-water birds, strong of wing, and brave-spirited beyond all other birds. Of the thirty-five species and subspecies recognized in North America, only two or three ever wander to inland lakes, even for three hundred miles from salt water. The variation in size from the largest albatross to the smallest petrel is very great; but at least half the species of the Order are to be classed as large birds. Three species will suffice to represent the group.

THE ALBATROSS FAMILY

Diomedeidae

The Wandering Albatross[1] is a bird of the southern oceans of the New World; and it is the largest and handsomest species in the Order *Tubinares*. It has the longest wings, but the narrowest for their length, and the greatest number of secondary feathers (over thirty in number) of any living bird. The weight of an adult bird is from 15 to 18 pounds, and when the wings are fully extended they have a spread of from 10 to 12 feet. Either when on the wing at sea, or mounted with spread wings as a museum exhibit, the wings of an Albatross are so exceedingly long and narrow that they have a very odd and unfinished appearance. They seem to be out of proper proportion, like wings lacking a proper outfit of secondary feathers. But they have their

[1] *Di-o-me'de-a ex'u-lans.*

BLACK-FOOTED ALBATROSS.

purpose. The Albatross can sail for hours, to and fro, without resting, and with wings so motionless they might as well be mechanically fixed.

Dr. Charles H. Townsend, who, as naturalist of the United States Fish Commission steamer *Albatross*, has had exceptional opportunities for studying Albatrosses at sea in all kinds of weather, has kindly furnished the following account of the most conspicuous species that inhabits the North Pacific:

The Black-Footed Albatross[1] is a common bird almost anywhere in the Pacific Ocean, from the latitude of California northward. This dark species is frequently seen the first day out, and can usually be depended upon to follow vessels in increasing numbers. On many voyages between San Francisco and the Aleutian Islands, the average attendance of Albatrosses, or "Gonies," as they are usually called, was from fifteen to twenty. Whether the same individuals stayed with the vessel during the whole run, or were replaced from time to time by other birds encountered along the way, we could not determine.

The birds were with us from daylight to dark, and in all sorts of weather. The S. S. *Albatross*, being engaged in deep-sea investigations, made frequent stops for the purpose of sounding and dredging. At such times the flock of birds would alight upon the water, often coming close enough to be caught on cod-hooks baited with pork. When on the wing, sometimes all the birds would assemble at once to feed on the waste thrown overboard from the galley, alighting in a confused manner, with much squawking and fluttering of wings.

We often hooked specimens while the ship was under way, by paying out the line rapidly enough to leave the bait lying motionless, and buoyed on the surface with a cork. The birds were not able to pick up a bait while on the wing, or while it was moving. When hooked they would set their wings rigidly at an angle, and a rapid hauling-in of the long line would send a bird skyward like a kite, which position it would retain until hauled down on the deck.

Fishing for "Gonies" was a common amusement on the *Albatross*, and specimens were often photographed alive on the decks, or marked in some way to determine if possible whether the same individuals followed

[1] *Di-o-me'de-a ni'gri-pes.*

the vessel throughout the voyage. Marked birds, however, never were seen again. The handling which they received probably disinclined them to follow the vessel.

The arrival of an Albatross on deck was usually followed by the disgorging of more or less food. They could not rise from the deck, and frequently were kept on board for several days. They walk with great difficulty, and bite savagely.

Albatrosses rise easily from the sea, and when the wind is blowing it is done very quickly. In calm weather several strokes of the wings and a rapid movement of the feet are necessary for the bird to clear the water. No bird can exceed the Albatross in the gracefulness of its flight. Usually following in the wake, it has, however, no difficulty in passing ahead of the vessel, always on rigid, motionless wings, rising, descending, or turning without a wing movement that is visible to the eye.

On voyages southwestward from California, the Black-Footed Albatross did not usually follow the vessel more than two-thirds of the way to the Hawaiian Islands. A species known as *Diomedea chinensis* breeds in great numbers on the chain of islands extending northwestward from Hawaii. So far as I am aware, the breeding-place of *Diomedea nigripes* is not known. It probably breeds during the winter months on islands in the southern hemisphere. It is sometimes found in Bering Sea, particularly in the Bristol Bay region, and is met with all summer long in the Pacific south of the Aleutian Islands. During many visits to the Aleutian and other American islands, it was never found on land, and the natives were not acquainted with it as a nesting bird.

In Bering Sea we sometimes met with the Short-Tailed Albatross (*Diomedea albatrus*). This species is nearly white, and in calm weather was usually observed resting on the sea, near the great flocks of fulmars. While the steamship *Albatross* was dredging off the southern coast of Chile, the great Wandering Albatross was frequently to be seen resting upon the water about the vessel, and we had no difficulty in taking specimens with hook and line.

Perhaps the most wonderful sight in Albatross life is to be found on Laysan Island, in the Pacific Ocean, where thousands of these birds nest close together on an open plain. There are acres and acres of living Albatrosses, stretching away as far as the camera can include them, until the plain is white with them. They manifest little fear of man, even when

iron rails are laid down, and small iron box-cars are pushed over them, to load with eggs from the nests.

After the reader has noted the above paragraph, written in 1902, a history of the great Albatross slaughter on Laysan Island will be found a few pages farther on in this chapter.

THE FULMAR FAMILY

Procellariidae

The Fulmars are like so many understudies of the Albatrosses; and the Shearwaters bring the Tube-Nosed group still nearer to the gulls and terns. The habits of all these are very much alike. All are strong-flying, mid-ocean birds, following ships for miles in order to pick up whatever edible food is thrown overboard. In one respect they are marine vultures, for some of the species make haste to feed upon any dead animal found floating on the sea or stranded on the shore.

No one with eyes ever need cross the Atlantic without seeing the dear little Stormy Petrel,[1] or "Mother Carey's Chicken," as it is called by sailormen. After the last gull has been left far behind, and there are about two miles of water under the ship, in the trough between two great waves there suddenly glides into view a pair of small black wings, fluttering rapidly, while two little webbed feet work violently to pat the concave surface of the deep blue water. Those who do not know the creature exclaim in surprise, "What in the world is *that?*"

"That" is one of the wonders of the ocean world. The

[1] *Pro-cel-la'ri-a pe-lag'i-ca.* Length, 5.50 inches.

cause for surprise is that so small and weak a creature—the smallest of all the web-footed birds, no larger and seemingly no stronger than a cat-bird—should live on the watery wastes of a landless ocean, eating, sleeping and enjoying literally "a life on the ocean wave, and a home on the rolling deep."

Drawn by J. Carter Beard.

STORMY PETREL.

Even when seas are calm and skies are clear, one cannot easily imagine how this creature can live and find its food. But when a prolonged storm sets in, and for ten days or two weeks at a stretch the surface of the sea is a seething, boiling caldron, with every wave a ragged "white-cap" and every square foot of the sea fretted like a fish-net by the force of the wind, how does the frail little Stormy Petrel survive?

You nearly always see this bird in the trough of the sea, skimming so low that its feet can paddle upon the surface of

the water and assist the wings. It is a black bird, with a large white patch on the rump, just above the tail. It rests upon the water fully half its time, I should say, and, aside from the table and galley refuse thrown overboard from vessels, the bulk of its food must consist of the tiny crustaceans that inhabit the floating bunches of sargasso weed.

THE TRAGEDY OF THE LAYSAN ALBATROSS

This bit of history should be of lively interest to every American, because the tragedy occurred on American territory.

In the far-away North Pacific Ocean, about seven hundred miles from Honolulu west-b'-north, lies the small island of Laysan. It is level, sandy, poorly planted by nature, and barren of all things likely to enlist the attention of predatory man. To the harassed birds of mid-ocean, it seemed like a secure haven, and for ages past it has been inhabited only by them. There several species of sea-birds, large and small, have found homes and breeding-places. Until 1909 the inhabitants consisted of the Laysan albatross, black-footed albatross, sooty tern, gray-backed tern, noddy tern, Hawaiian tern, white tern, Bonin petrel, two shearwaters, the red-tailed tropic bird, two boobies and the man-o'-war bird.

Laysan island is two miles long by one and one-half miles broad, and at times it has been literally covered with birds. Its bird life was first brought prominently to notice in 1891, by Henry Palmer, the agent of Hon. Walter Rothschild, and in 1902 and 1903 Walter K. Fisher and W. A. Bryan made further observations.

Ever since 1891 the bird life on Laysan has been regarded

as one of the wonders of the bird world. One of the photographs taken prior to 1909 shows a vast plain, apparently a square mile in area, covered and crowded with Laysan albatrosses. They stand there on the level sand, serene, bulky and immaculate. Thousands of birds appear in one view—a very remarkable sight.

Naturally, man, the ever-greedy, began to cast about for ways by which to convert some product of that feathered host into money. At first guano and eggs were collected. A tramway was laid down and small box-cars were introduced, in which the collected material was piled and pushed down to the packing place.

For several years this went on, and the birds themselves were not molested. At last, however, a tentacle of the feather-trade octopus reached out to Laysan. In an evil moment in the spring of 1909 a predatory individual of Honolulu and elsewhere, named Max Schlemmer, decided that the wings of those albatrosses, gulls and terns should be torn off and sent to Japan, whence they would undoubtedly be shipped to Paris, the special market for the wings of sea-birds slaughtered in the North Pacific.

Schlemmer the Slaughterer bought a cheap vessel, hired twenty-three phlegmatic and cold-blooded Japanese laborers, and organized a raid on Laysan. With the utmost secrecy he sailed from Honolulu, landed his bird-killers upon the sea-bird wonderland and turned them loose upon the birds.

For several months they slaughtered diligently and without mercy. Apparently it was the ambition of Schlemmer to kill every bird on the island.

From the Zoological Museum, Tring, Herts., England.

ALBATROSSES ON LAYSAN ISLAND BEFORE THE GREAT SLAUGHTER.

By the time the bird-butchers had accumulated between three and four carloads of wings, and the carnage was half finished, William A. Bryan, Professor of Zoology in the College of Honolulu, heard of it and promptly wired the United States Government.

Without the loss of a moment the Secretary of the Navy despatched the revenue cutter *Thetis* to the shambles of

ALBATROSS BONES ON LAYSAN ISLAND, 1911.
After the tragedy. One mile long and one hundred and fifty feet wide paved with bones.

Laysan. When Captain Jacobs arrived he found that in round numbers about *three hundred thousand* birds had been destroyed, and all that remained of them were several acres of bones and dead bodies, and about three carloads of wings, feathers and skins. It was evident that Schlemmer's intention was to kill all the birds on the island, and only the timely arrival of the *Thetis* frustrated that bloody plan.

The twenty-three Japanese poachers were arrested and taken to Honolulu for trial, and the *Thetis* also brought away

all the stolen wings and plumage with the exception of one shedful of wings that had to be left behind on account of lack of carrying space. That old shed, with one end torn out, and supposed to contain nearly fifty thousand pairs of wings, was photographed by Professor Dill in 1911, as shown herewith.

Three hundred thousand albatrosses, gulls, terns and other birds were butchered to make a Schlemmer holiday! Had the arrival of the *Thetis* been delayed, it is reasonably certain that every bird on Laysan would have been killed to satisfy the wolfish rapacity of one money-grubbing white man.

In 1911 the Iowa State University despatched to Laysan a scientific expedition in charge of Professor Homer R. Dill. The party landed on the island on April 24 and remained until June 5, and the report of Professor Dill (United States Department of Agriculture) is deeply interesting to the friends of birds. Here is what he has said regarding the evidences of bird-slaughter:

> Our first impression of Laysan was that the poachers had stripped the place of bird life. An area of over 300 acres on each side of the buildings was apparently abandoned. Only the shearwaters moaning in their burrows, the little wingless rail skulking from one grass tussock to another and the saucy finch remained. It is an excellent example of what Professor Nutting calls the survival of the inconspicuous.
>
> Here on every side are bones bleaching in the sun, showing where the poachers had piled the bodies of the birds as they stripped them of wings and feathers. In the old open guano shed were seen the remains of hundreds and possibly thousands of wings which were placed there but never cured for shipping, as the marauders were interrupted in their work.
>
> An old cistern back of one of the buildings tells a story of cruelty that surpasses anything else done by these heartless, sanguinary pirates, not excepting the practice of cutting wings from living birds and leaving them to die of hemorrhage. In this dry cistern the living birds were kept

by hundreds to slowly starve to death. In this way the fatty tissue lying next to the skin was used up, and the skin was left quite free from grease, so that it required little or no cleaning during preparation.

Many other revolting sights, such as the remains of young birds that had been left to starve, and birds with broken legs and deformed beaks were to be seen. Killing clubs, nets and other implements used by these marauders were lying all about. Hundreds of boxes to be used in shipping

THE LAST OF THE LOOT.

About twenty-five thousand of the wings collected by the bird-butchers of Laysan, now decaying in this old shed.

the bird skins were packed in an old building. It was very evident they intended to carry on their slaughter as long as the birds lasted.

Not only did they kill and skin the larger species but they caught and caged the finch, honey-eater, and miller bird. Cages and material for making them were found.—Report of an Expedition to Laysan Island in 1911. By Homer R. Dill, page 12.)

The report of Professor Bryan contains the following pertinent paragraphs:

This wholesale killing has had an appalling effect on the colony. . . . It is conservative to say that fully one-half the number of birds of both

species of albatross that were so abundant everywhere in 1903 have been killed. The colonies that remain are in a sadly decimated condition. . . . Over a large part of the island, in some sections a hundred acres in a place, that ten years ago were thickly inhabited by albatrosses not a single bird remains, while heaps of the slain lie as mute testimony of the awful slaughter of these beautiful, harmless and without doubt beneficial inhabitants of the high seas.

In February, 1909, President Roosevelt issued an executive order creating the Hawaiian Islands Reservation for Birds. In this are included Laysan and twelve other islands and reefs, some of which are inhabited by birds that are well worth preserving. By this act we may feel that for the future the birds of Laysan and neighboring islets are secure from further attacks by the bloody-handed agents of the vain women of Europe, who still insist upon wearing the wings and feathers of wild birds, and even yet have a legal right to do so.

CHAPTER XXXIV

ORDER OF LONG-WINGED SWIMMERS

LONGIPENNES

THE members of the Order of Gulls and Terns appeal to a greater number of admirers than any other group of web-footed birds. The reasons are: their wide distribution, both on salt water and fresh-water lakes; their conspicuous and graceful flight; their partial immunity from wholesale slaughter, and their friendliness toward the arch-destroyer, man. Every harbor and every steamer track is a safe feeding-ground for these birds, and along thousands of miles of shore line they are the most beautiful wild creatures that greet the eye.

The three North American Families of this Order are as follows:

ORDER LONGIPENNES

FAMILIES		EXAMPLES
GULLS AND TERNS	*La'ri-dae*	Herring Gull; Common Tern.
SKIMMERS	*Ryn-chop'i-dae*	Black Skimmer.
SKUAS AND JAEGERS	*Ster-co-rar-i'i-dae*	Parasitic Jaeger.

THE GULLS AND TERNS

Laridae

THE HERRING GULL,[1] an old and familiar friend which ranges far inland, and also far outward on the sea, is the best

[1] *La'rus ar-gen-ta'tus.* Average length, 24 inches.

and most interesting type of this Family. It is an ideal Gull—long-winged, large, white and pearl-gray in color, strong, yet graceful on the wing, a good fighter, and sufficiently plentiful in number to be known to millions of people. It inhabits the whole sea-coast, and all the salt-water bays and inlets of North America, the great lakes, the lakes and ponds of Michigan, Minnesota, Iowa, and several of our larger rivers, such as the Potomac, Mississippi, Missouri and Columbia. From all their regular routes of travel and places of residence they stray inland for an indefinite number of miles.

The Herring Gull nests from southern Maine and the great lakes northward to the Arctic Ocean, and makes its winter home in the United States. All transatlantic voyagers have seen it far out at sea, almost half-way between Sandy Hook and Queenstown.

In Georgian Bay the sight of Gull life on the crystal-clear waters, and clean, bare islets of pink granite near Owen Sound, was one of the most enchanting I ever beheld. Going down Puget Sound on a cold and windy day in November, a large flock of the same old friends followed the steamer for twenty miles, sailing along beside us, sometimes within ten feet of the rail of the hurricane-deck—a sight which well repaid one for half freezing in order to see it to the most perfect advantage.

But why wander so far from home to see Gulls? Only a mile from the Zoological Park is the Williamsbridge Reservoir of the New York City water-works. Not long since curiosity to ascertain whether any winter birds were being attracted by that very small but high basin of water led me to climb

THE HERRING-GULL (1, 2) AND COMMON TERN (3, 4).

up and see. To my great astonishment, I found a distinguished company of sixty-seven Herring Gulls, standing and sitting in serene contentment on the sheet of ice that covered one-half the surface of the water. It was a nice, quiet, genteel place, well below the sweep of the wind; there was plenty of water for the birds to soak their feet in when the ice made them too cold, and what more could a Gull ask, except a daily delivery of fresh fish?

The voice of this Gull is not melodious; and some persons call it harsh and strident. But opinions differ, even on as small a matter as the voice of a Gull. I never yet heard the cry of a wild gull, either on the booming sea-shore or over the silvery mirror of an inland lake, which was not music to my ears.

In captivity the Gull is badly handicapped. With the primaries of one wing clipped to prevent escape, and without the power of flight, it is not seen at its best; for no gull is perfect save in flight. Our flock is continually shrieking protests against unlawful detention, and with perfect wings every one would quickly fly away, as did those bred in the park and reared to adolescence with perfect wings. We tried to colonize them, but once away they never came back.

In an enclosure which embraced a pond and an island inhabited by about twenty Gulls, twelve Canada geese and a few other birds, two enterprising Gulls decided to nest and rear a family. Accordingly, they built a nest under a bush which stood on a point of the island, in a position that strategically was well chosen for purposes of defence. The two birds made a very wise division of the labor. The female built the nest, laid the eggs and hatched them, and the male

did the screaming and fighting that was necessary to protect the family from molestation.

Never was there a more bonnie fighter than that male bird. During that whole nesting-period, lasting from April 1 to May 15, he either bluffed or fought to a standstill everything that came within ten feet of that nest. Before his defiant and terrifying screams, and his threatening beak and wings, no other Gull could stand for a moment. When a Canada goose crossed his dead-line, the Gull would rush at him, seize him by the nearest wing, wing-beat him, and hang on like a bulldog, regardless of being dragged about by the stronger bird, until the goose was glad to purchase peace by retreating. During all these battles the female sat firmly on her eggs, but pointed her bill at the sky and screamed encouragement with all the power of her vocal machinery. Eventually the three eggs were hatched, and the young were reared successfully.

On certain islands along the coast of Maine, where Gulls nest in considerable numbers, Mr. William Dutcher has done important and effective work in securing the protection of the birds by the owners of the islands. As if to reward Mr. Dutcher for his labors in their behalf, the Gulls permitted him to photograph them on their nests at very short range. In England the Zoological Society of London has awarded its medal to several persons for noteworthy services in protecting Gulls from destruction.

The Common Tern,[1] but for the timely interference of the Audubon law, would ere now have become the very Un-

[1] *Ster'na hi-run'do.* Average length, 14.50 inches.

common Tern. The persons who for years slaughtered birds wholesale and without check for "millinery purposes" would have exterminated this species, at least all along the Atlantic coast.

In an evil hour some person without compassion, and with no more taste for the eternal fitness of things than a Texas steer, conceived the idea of placing stuffed Terns on women's hats, as "ornaments." Now, unfortunately, woman's one universal weakness lies in the belief that whatever the Fashion Fetish commands that she shall wear, that is necessarily a beautiful thing for her to deck herself withal. As a result, we have seen thousands of angular, dagger-beaked, sharp-winged, dirty-plumaged, rough-looking and distorted Terns, each one a feathered Horror, clamped to the fronts and sides of the hats of women, and worn as head *ornaments!*

Those objects spoke very poorly for their wearers; for since the daughters of Eve first began to wear things on their heads, the Rumpled Tern is the ugliest thing ever devised for head-gear. Thus has been developed a new bird species, which we will christen as above, with *Sterna horrida* as its Latin name. Thanks to the Audubon law, however, the wearing of stuffed birds has, with fashionable people, quite gone out of fashion, and the only exceptions now seen are on the heads of servants, who, for motives of economy, are wearing the cast-off millinery of their mistresses.

The Tern is much smaller than the herring gull; it has a very short neck, very long and angular wings, and when on the ground is not a bird of beautiful form. On the wing, however, and especially over the breakers, its appearance is grace-

ful and pleasing. It is a white-and-gray bird, excepting the black bonnet which covers the upper half of its head and neck, and its bill, feet and legs are coral red.

Along our Atlantic coast, and especially from Nantucket to Hatteras, it was once a very familiar bird, and its escape for annihilation has been of the narrowest. The anti-bird-millinery laws passed by New York and other states effectually stopped the sale of wild birds and their plumage for "millinery purposes," and the Terns are no longer slaughtered as heretofore. In several places where they breed they are now protected, and henceforth should slowly increase in number.

There are now but few localities on our Atlantic coast between New Jersey and Nova Scotia where the Common Tern, or "Sea Swallow," breeds. Two of these are Muskeget Island, northwest of Nantucket, and Gardiner's Island. The once numerous colony that formerly inhabited Gull Island, near the eastern end of Long Island, was broken up and driven off by a "military necessity," no less important than the building of a modern fort to protect the City of New York. By a strange coincidence, it was the 12-inch guns of our coast defence artillery that drove these much-persecuted birds from one of their favorite nesting-grounds.

THE SKIMMER FAMILY

Rynchopidae

The Black Skimmer[1] is a tern in form, but without the spear-like bill of the latter for spearing fish. Its lower mandible is formed for use as a cut-water—long, thin, rather broad,

[1] *Ryn'chops ni'gra.* Length, about 16 inches.

and flattened *vertically*. The upper mandible is similarly shaped, but is shorter.

When seeking food, the Skimmer looks for calm water, and then, with most dexterous and well-balanced flight, it slowly wings its way close down to the surface, so low that the lower mandible is actually held *in the water* while the bird is in full flight. Any small edible object that happens to lie on the surface is shot into the mouth, through what is really a very narrow opening.

This is a bird of the tropics, and is much more at home on the coast of British Guiana, among the scarlet ibises, than it is on the coast of the United States anywhere north of Florida. I have never seen it elsewhere than in South America, and on our shores it is a visitor of great rarity. It nests on Cobb Island, off the coast of Virginia, and lives long in comfortable captivity.

THE SKUA AND JAEGER FAMILY

Stercorariidae

The members of this Family are habitants of the cold northern seas and high latitudes. They are strong-winged, bold and hardy, and so frequently rob other sea-birds of their prey that they are sometimes called the hawks of the sea. Living examples are rarely seen save by persons who are voyaging northward above the 40th parallel. Of the four species inhabiting North America, the following is the one most frequently seen in the United States.

THE PARASITIC JAEGER[1] is quoted geographically as follows: "Northern part of northern hemisphere, southward in

[1] *Ster-co-ra'ri-us par-a-sit'i-cus.* Length, about 17 inches.

winter to South Africa and South America. Breeds in high northern districts, and winters from New York and California southward to Brazil." A description of the colors of this bird would be a formidable affair, for both adults and young birds have each two color phases. The beak of the adult is strongly hooked at the end, like that of a cormorant, but still more pronounced.

CHAPTER XXXV

ORDER OF WEAK-WINGED DIVING BIRDS

PYGOPODES

WITH this group the Class of Birds enters upon a very marked and swift decline from the high types. Another step beyond this Order, and we land among birds so nearly wingless that they are without the power of flight. The birds of the present Order have wings that are small and weak; and while they are able to fly, and also to migrate, they fly feebly in comparison with the cloud-cleaving goose, duck, gull and albatross. Their legs are set far back on their bodies, and on land they have no choice but to stand erect—a posture which is strikingly characteristic of the wingless sea-birds generally.

This Order, as represented in North America, contains but three Families:

ORDER PYGOPODES

FAMILIES		EXAMPLES
GREBES	*Pod-i-cip'i-dae*	Pied-Billed Grebe.
LOONS	*Gav-i'i-dae*	Great Northern Diver.
AUKS AND PUFFINS	*Al'ci-dae*	Razor-Billed Auk; Tufted Puffin; Murre.

Of these, the first and second are comparatively well known. The third is composed of birds that are strangers to the great majority of us; but inasmuch as Alaska is constantly being

brought nearer to us, it is quite necessary that we should become acquainted with its most prominent forms of bird life.

THE GREBE FAMILY

The Pied-Billed Grebe, or "Hell-Diver," also called the Carolina Grebe,[1] is well qualified to stand as the representative of the Grebe Family, which in North America contains about six species. It is usually seen in the geographical centre of a quiet pond, sharply watching in every direction for enemies. It is a sad and uncomfortable-looking little creature, destitute of bright and pleasing colors, and also devoid of beauty. At a distance, the hunter is thrilled by the sight of what he gladly thinks is a duck; but on approaching nearer he sighs regretfully, and admits that it is "only a Grebe." If he fires at it, in revenge for the disappointment, the bird is gone before the charge of shot is half-way to it, and only an innocent ripple marks its disappearance.

All the Grebes are expert long-distance divers. They can either sink straight down, or dart down head first in a fraction of a second, and remain under water for so long a time and swim so far while submerged, that it is very difficult to follow their movements. Sometimes a Grebe will insinuate only its bill above the surface, in order to breathe without exposing even its head and neck. It is a waste of time, ammunition and self-respect to shoot and actually kill one of these birds; for they are very commonplace and useless.

The only redeeming feature about this bird is its breast, which is covered with a thick mass of very persistent feathers,

[1] *Pod-i-lym'bus pod'i-ceps.* Average length, 12 inches.

set so tightly in a very tough skin that the evil-eyed milliners once used Grebe's breasts for hat trimmings. A few years ago the Klamath Lake region of northern Oregon literally swarmed with Grebes, but the agents of "the feather trade" slaughtered them so fiercely and persistently that they were almost exterminated. Now that region has been converted into a national bird refuge, and all its bird life is forever under the protection of the National Government.

The nesting habits of the Grebe are remarkable and interesting. Instead of choosing a dry situation, where incubation might proceed under the best possible conditions, it frequently chooses a clump of rushes in deep water and builds a floating nest, attached to the rushes. Sometimes, however, it selects a spot where the water is very shallow, and builds from the bottom up, using rushes when it is possible to procure them. In either case, the sodden mass rises only two or three inches above high-water mark, and how the eggs ever receive warmth sufficient to hatch them is a mystery.

Occasionally a clump of rushes with a floating nest breaks loose from its moorings, and floats away. Some friends of mine once discovered a derelict nest, with the Grebe sitting serenely upon it, floating about in Lake Ontario, whither it had evidently been borne on the current of Johnson's Creek. Doubtless it is a real grief to Grebes that they cannot hatch their eggs under water!

The Pied-Billed Grebe, also called *Dabchick*, and *Diedipper*, is a Pan-American bird, being found throughout North and South America from Cape Horn to the Mackenzie River, and from the Atlantic to the Pacific. Its phenomenally wide

range includes Cuba, several others of the larger islands of the West Indies and the Bermudas.

Its prevailing color is brownish gray, with black throat and chin. Its bill is dull white, with a broad, perpendicular band of black crossing it at the middle, like a rubber band, to hold the mandibles together. In size this bird is about as small as a green-winged teal.

THE LOON FAMILY

Gaviidae

The Loon, or Great Northern Diver,[1] is a large, showy, black-and-white bird, of such striking personality that when once well seen it is not easily forgotten. In bulk it is as large as an ordinary goose, and when standing erect, on land, its height is about 25 inches. Its neck and head are large and jet black, and the upper portion of the former is encircled by a white collar which is formed of upright lines of white dots. The breast is pure white, and the jet-black back is marked by rows of rectangular white dots, or broken bars. The legs join the body far down, near the tail, and when the bird takes to the land, it rests on its feet, the lowest joint of the legs (tarsi) and the tail, which lies flat upon the ground.

Either on land or water this Loon is a very showy bird, and also a bird possessing many of the mental traits which when combined form what we call "character." Usually it is very wide-awake, suspicious and difficult to approach; but there are times when it will approach danger as if bent on suicide. Its cry is loud and far-reaching. Sometimes it is

[1] *Gav'i-a im'ber.*

like a distressful howl, and again it resembles wild, uncultivated laughter. It is an expert diver and fisher, and in summer is at home all over the upper two-thirds of North America, breeding from our northern states to the Arctic Circle,

COMMON MURRE. THE LOON.

quite across the continent. In winter it migrates southward to the Gulf and the Mexican boundary.

Its eggs are two in number, of a dull-green color. The newly hatched birds are covered with black down, and in travelling the mother bird often swims with them upon her back. The Loon rises from the water with considerable

effort, and flies heavily, but in migrating its powers of flight are sufficient to carry it wherever it wishes to go.

In the Potomac River, and along the Virginia coast, this bird is called the "War Loon."

THE CLIFF DWELLERS OF THE SEA

There is a Family of weak-winged birds whose members are all fisher-folk, and live high up on the ledges of the bold and precipitous cliffs which hem in the northern oceans. They are sociable birds, and where not destroyed by man live in great companies varying from hundreds to thousands. They form, as a whole, a great and diverse company, divided into 23 well-defined species. Collectively, they are known as the Auk Family, and include 4 puffins, 6 auklets, or little auks, 5 murrelets, 3 guillemots, 2 murres, 2 auks and 1 dovekie.

Whenever you visit Alaska, or the arctic regions, almost anywhere on salt water, you will be surprised by the abundance of the birds belonging to this Family. Wherever rocky cliffs rise out of blue water, you will find them tenanted by these interesting creatures. Doubtless, also, you will find that when such great gatherings of bird life are to be studied and recorded, one good camera is better than ten guns.

Like the Aztecs who, like eagles, built high up in the crevices of the rock-cliffs of the gloomy Canyon de Chelly, to be inaccessible to the hostile enemies who gave no quarter, for similar reasons the feathered cliff dwellers of the sea build in similar situations. Dearest of all spots to the nesting sea-bird is a precipitous islet of rock rising out of the sea, wholly inaccessible to the prowling wolf, fox and wolverine, and, if

not actually inaccessible to man, at least so very difficult that he looks for easier conquests.

But let it not be understood that the birds of the Auk Family confine themselves to high cliffs and precipices. On the contrary, they congregate in thousands on rocky ridges, or on the tops of sandy hills—called dunes—at the sea-shore, where their nests are easily accessible to all their enemies. Just why their enormous colonies do not attract foxes and wolves by hundreds, we cannot imagine, unless it be for the reason that the general abundance of animal life dulls the edge of appetite and enterprise.

To any one interested in sea-birds, of which there is really a great variety, a trip to Alaska is replete with interest. Within a few hours after leaving Seattle, or, let us say, at Port Townsend, the bird life around the ship fairly compels attention. A flock of gulls fly so close to the rail of the hurricane-deck that some of them might be caught with a dip-net. Pigeon guillemots, and ducks of several species afloat on the cold waters of the Sound, ostentatiously swim out of the steamer's track. On the ocean it will be strange if an albatross does not sail out of space, and with far-stretching wings swoop and soar, and sail after you, hour after hour, without once flapping its wings!

In Bering Sea, no matter where you land, the chances are that thousands of murres and puffins are there to greet you with noisy cackle, and spread a cloud of wings overhead when you disturb them. Really, the rookeries of Alaska — of seals as well as birds —are alone sufficient to repay a trip to that arctic wonderland, aside from the wonderful scenery,

flora and big game. There are dozens of birds there which we would gladly introduce to the reader, but, owing to uncontrollable limitations, only the most interesting examples can be accorded space.

Of all arctic and northern sea-birds, the California Murre[1] (pronounced *mur*) deserves to be mentioned first, for the reason that it is and ever has been most in the public eye. This is really a subspecies of the Common Murre[2] of the North Atlantic, which nests on Bird Rocks in the Gulf of St. Lawrence, and sometimes comes as far south as Massachusetts. There is another North Atlantic species, called Brunnich's Murre,[3] also nesting on Bird Rocks, which occasionally strays down to Long Island. Both the Atlantic species are black above and white underneath.

The California Murre is the bird which once nested on the Farallone Islands, about thirty-five miles west of San Francisco, in countless thousands, and furnished between 1880 and 1890, according to Mr. W. E. Bryant, from 180,000 to 228,000 eggs per annum to the San Francisco market. Like true Americans, the eggers always endeavored to make "a clean sweep," regardless of the future of the rookery, and under their ministrations the Murres rapidly declined in number.

Finally, an appeal was made to the United States Light-House Board. The admirable record of that body in the preservation of wild life was sustained by an order which at once put a stop to all egg-gathering on the Farallones. It has already been noted in the chapter on seals and sea-lions

[1] *U'ri-a tro'i-le californica.* [2] *U. troile.* [3] *U. lom'vi-a.*

that the only localities on the California coast where sea-lions are now safe from annihilation are the light-house reservations, the most important of which are the Farallones.

The following vivid pen-picture of the California Murre at home, on Hall Island, Bering Sea, Alaska, is from the pen of Mr. John Burroughs ("Harriman Alaska Expedition," p. 109):

> The first thing that attracted our attention was the Murres—"urries" the Aleuts call them—about their rookeries on the cliffs. Their numbers darkened the air. As we approached, the faces of the rocks seemed paved with them, with a sprinkling of gulls, puffins, black cormorants and auklets.
>
> On landing at a break in the cliffs where a little creek came down to the sea, our first impulse was to walk along the brink and look down upon the Murres, and see them swarm out beneath our feet. On the discharge of a gun, the air would be black with them, while the cliffs apparently remained as populous as ever. They sat on little shelves, or niches, with their black backs to the sea, each bird covering one egg with its tail-feathers. In places one could have reached down and seized them by the neck, they were so tame and so near the top of the rocks. I believe one of our party did actually thus procure a specimen. It was a strange spectacle, and we lingered long looking upon it. To behold sea-fowls like flies, in uncounted millions, was a new experience.
>
> Everywhere in Bering Sea the Murres swarm like vermin. It seems as if there was a Murre to every square yard of surface. They were flying about over the ship, or flapping over the water away from her front at all times. I noticed that they could not get up from the water except against the wind: the wind lifted them as it does a kite. With the wind, or in a calm, they skimmed along on the surface, their heads bent forward, their wings beating the water impatiently. Unable to rise, they would glance behind them in a frightened manner, then plunge beneath the waves until they thought the danger had passed. Their tails are so short that, in flying, their two red feet stretched behind them to do the duty of a tail.

Mrs. Florence Merriam Bailey says that "When incubating one bird stays on the nest during the day, and the other during the night, and when the exchange is made a great commo-

tion ensues, the air being filled with quarrelling, screaming masses of bird life." ("Handbook," p. 17.)

In its breeding plumage, the California Murre has a jet-black head and neck, the back is dull black, or slate-color, and the under-parts are white. In winter the sides of the head and throat are white. The range of the species is from California to Hall Island, Bering Sea.

THE AUKS AND PUFFINS

The Puffins are the clowns of the bird world. Without exception they are the drollest-looking things in feathers. The countenance of a Puffin always reminds one of a face in a comical mask, while in manner they are so solemn, and take life so seriously, their clown-likeness is all the more pronounced.

The most remarkable feature of a Puffin is its huge, triangular beak, which is flattened out into two high, thin plates, set edgewise against the head and gorgeously colored. After the breeding-season certain plates at the base of the beak are shed. The bird is about the size of a wood duck. Its wings are short and very scantily feathered, and its tail is so short as to be practically invisible. In flight its wings look very much like the wings of a penguin as it swims with them under water.

In many respects Puffins are wise birds, and if there is aught in the survival of the fittest they should live long and prosper. They have the remarkable habit of nesting in burrows, which they dig deeply, usually about three feet, in the steep sides of sandy hills. In these retreats they can defend themselves against enemies of several kinds. In the defence of their homes they are quite courageous, and often

an angry or well-frightened Puffin will seize an offending nose, or human hand, bite it severely, and hang on like a bull-dog. In places where these birds nest in burrows, sentinels

1. COMMON PUFFIN. 2. TUFTED PUFFIN.
3. RHINOCEROS AUKLET.

are always posted outside, to give the alarm of any approaching enemy.

It is to be observed, however, that Puffins do not always nest in burrows, but frequently they find rock ledges so rugged and broken that they can find good nesting-sites in deep and narrow crevices, wherein they are reasonably safe from molestation. A Puffin lays but one egg, which is large

and white, and placed at the end of its burrow. Of course all these birds dive and swim well.

The Tufted Puffin[1] is the most widely distributed member of this genus, being found from southern California all the way up the Pacific coast to Alaska, Bering Strait, Siberia and on down to Japan. It is (or at least *was*) abundantly represented on the Farallone Islands from April to July, when they breed there.

This species is instantly distinguishable by its black plumage, its big, triangular bill colored bright red and olive-green, white eye and white triangular cheek-patch. In the breeding-season a beautiful flowing tuft of soft, yellow feathers, thick as a lead-pencil, comes forth just behind the eye, and flows backward and downward in a graceful curve.

On the Atlantic side, from Maine to Greenland, and also from Great Britain to North Cape, lives the Common Puffin,[2] or "Sea Parrot." Of this bird, the whole side of the head, and the breast and abdomen are white, the remainder of the plumage being deep black. Wherever found, it is one of the most interesting birds to be met with near the sea, and its comical appearance, queer movements and fierce temper when disturbed never fail to amuse the observer.

The Auks and Auklets are really birds of the cold northern waters; but on the Pacific side there are four species which touch the coast of the United States, and two of them even push their way down to Lower California. These birds are much like puffins with rational beaks, and I believe all

[1] *Lun'da cir-ra'ta.* Length, 15 inches.
[2] *Fra-ter'cu-la arc'ti-ca.* Length, 13 inches.

existing species are black above and white below. The beaks show but little tendency to the sportive flattening so characteristic of the puffins.

These birds are very strong divers, and get a great portion of their food from the bottom of the sea. The two species found all along our Pacific coast, on the Farallone Islands and Santa Catalina, are the *Rhinoceros Auklet*[1] (14 inches long), and the *Cassin Auklet*, the former so called because of an erect horny shield at the base of its beak. The *Least Auklet*[2] is only 6½ inches long—about the bulk of a small, thinly feathered screech owl.

The Razor-Billed Auk,[3] of the North Atlantic Ocean, sometimes wanders in summer to the coast of Maine, and in winter even migrates as far south as New Jersey. (Robert Ridgway.) It is 17 inches long, and is the largest living member of the group of auks. As might be expected, it is a distinguished resident of the Bird Rocks.

The Great Auk is now a bird of history and museums only. It met its fate on Funk Island, a treeless dot in the sea, about thirty miles northwest of Newfoundland, which was the first land met with as the Auks swam southward on their annual migrations. The wings of this bird were so little developed that it was wholly unable to fly, and while on land it was any one's prey.

The thousands of Great Auks that visited Funk Island naturally attracted men who wished to turn them to account. Whalemen were landed, and left there to kill Auks for their feathers and oil. The birds were either driven into pens

[1] *Cer-o-rhin'ca mo-no-cer-a'ta.* [2] *Sim-o-rhyn'chus pu-sil'lus.* [3] *Al'ca tor'da.*

and slaughtered there, or else the pens were used to contain their dead bodies. Apparently great numbers of the bodies were burned for fuel. About 1844 the species became entirely extinct.

When Funk Island was visited by Dr. F. A. Lucas in 1887, in quest of Auk remains, he found deposits of bones several feet in thickness, evidently where the bodies of slaughtered birds had been heaped up and left to decay. Out of these deposits several barrels of mixed bones and peaty earth were taken which yielded several complete skeletons of that species.

Had the Great Auk possessed wings for flight, the chances are that it would not have fallen such easy prey to its exterminators. The moral lesson of its fate is—in these days of firearms and limitless ammunition—no bird should be hatched without steel-plate armor, strong wings for flight and swift legs for running away.

CHAPTER XXXVI

ORDER OF FLIGHTLESS DIVERS

IMPENNES

NO matter where man may go, on land or sea, or polar ice-pack, Nature holds birds in readiness to welcome him.

When Peary reached the point of land that is nearest the north pole, at the northeastern extremity of Greenland, on July 4, 1892, he found there the snow bunting, sandpiper, raven, Greenland falcon and ptarmigan. On the great arctic ice-floe, at Latitude 82° 40′, Nansen saw the fulmar (*Procellaria glacialis*) and the black guillemot, and a little later the ivory gull, little auk and Ross's gull. When Captain Scott penetrated the awful solitudes of the antarctic continent, in 1911, he found there flocks of large and very strange birds. His party had an opportunity to study the wonderful EMPEROR PENGUIN[1] in its haunts, such as never before had been secured by naturalists. For the first time that wonderful bird was secured on the films of a moving-picture camera.

This species is the largest of the wingless and flightless swimming birds. In bulk it is about the size of our great white pelican. Its height is 3½ feet, and it stands as erect as any soldier on parade. In its erect posture its wings seem

[1] *Ap-te-no-dy'tes fos'ter-i.*

like arms, and its queer manner of talking, scolding and prying into man's affairs makes this bird seem more like a feathered caricature of a big, fat human being than an ordinary diving bird. Its head is black, its abdomen is white and its legs and feet are feathered quite down to the claws. The wings are covered with feathers that are more like fish-scales than feathers, and the feathers of the back also are very close and scale-like.

To a naturalist or bird-lover, the sight of great flocks of Emperor Penguins, and of the smaller *Pack Penguins*, on the antarctic ice-floes, must be sufficient to repay the explorer for many of the long, dark hours of the voyage that is required to reach their haunts. The breeding and nesting habits of the antarctic penguins constitute one of the perpetual marvels of bird life.

I have seen and heard the BLACK-FOOTED PENGUIN,[1] of South Africa, scold and complain in a most human-like manner. On land, or on an ice-floe, this bird is so awkward and helpless that any bloodthirsty observer can walk up and kill it with a stick. Place it in water, however, and what a transformation! Immediately it will give an exhibition of diving which is astonishing.

In an instant a waddling, slow-moving, almost helpless bird is transformed into a feathered seal. With its feet floating straight behind, *and of no use save in steering*, it points its beak and head straight forward, and swims wholly *with its wings*. Those flipper-like members reach forward simultaneously, work in perfect unison, and strike the water like

[1] *Sphe-nis'cus de-mer'sus.*

THE EMPEROR PENGUIN.

living paddles—which they are. The quickness and dexterity of this bird in chasing and capturing live fishes, swallowing them under water and instantly pursuing others, is one of the most wonderful sights in bird life. The bird always dives with its lungs full of air, and during the middle of its period under water it exhales. When it does so, bubbles of air issue from each corner of the mouth and float upward like two strings of pearls.

It is strange that the feet perform so very little service while the Penguin is diving; but such is the fact. Of all birds that love water, I think the Penguin loves it most. It will lie on its side at the surface and, in sheer playfulness and excess of joy, beat the water with its uppermost wing, wriggle about, then turn over and splash with the other.

In the sea a flock of Penguins is readily mistaken for a school of dolphins, because they dive so persistently, in order to swim with their wings, and thus get on in the world very much faster than if they sat up and paddled with their feet.

There are about twenty species of Penguins, of which the Emperor is the largest, and the King Penguin second. All are found in the southern hemisphere. The largest Emperor Penguin ever weighed and recorded weighed 78 pounds! Needless to say, these birds live almost wholly upon fish, in the capture of which they are the most expert of all birds.

CHAPTER XXXVII

ORDER OF WINGLESS LAND BIRDS

RATITAE

LOWEST of the Orders of living birds is that which contains the birds which are so nearly wingless that they are wholly unable to fly, but are provided with long and powerful legs, which enable them to run swiftly. Of these there are a larger number of species than might be supposed, but our purpose requires here only the briefest introduction of a few important forms. The majority of the birds of this group are birds of great size, and their legs are so long and powerful they are able to kick or strike quite dangerously. These are the ostriches, rheas, cassowaries and emus.

THE AFRICAN OSTRICH[1] is the largest living bird, and in every respect it is a worthy descendant of the still more gigantic but now extinct moa of New Zealand. A full-grown male Ostrich stands, when fully erect, 8 feet in height to the top of its head, and weighs about 275 pounds. The manager of the Florida Ostrich Farm at Jacksonville states that the average weight of adult African Ostriches is about 300 pounds.

Once abundant in nearly all the dry and open country of Africa, except the Sahara and Libyan deserts, this noble bird has shared the fate of the elephant, rhinoceros, buffalo and giraffe. To-day it is to be found but sparingly, and only

[1] *Stru'thi-o cam'e-lus.*

in those regions of southern and eastern Africa wherein it is now protected. The value in America of a full-grown African Ostrich is $250.

Fortunately, the Ostrich farms of South Africa, California, and Arizona have proven completely successful, and bid fair to perpetuate this grandest of all feathered creatures long after the last wild flock has been destroyed. If many Ostriches still remain in the Egyptian Soudan, the stringent game laws recently enacted to protect the wild life of that region will go far toward perpetuating them.

The Rhea, or South American Ostrich,[1] is a bird which is so constantly overshadowed by the larger and more showy African ostrich that it is not appreciated at its true zoological value. In height it stands about 5 feet, its bulk is only about one-half as great as that of the African ostrich, and its plumage has much less value. Nevertheless, the adult bird, in full plumage, is a fine creature, of a beautiful bluish-gray or drab color, and when it opens its wings they seem surprisingly long. A fine male Rhea "showing off" its plumage is an object which always commands admiration.

This bird inhabits Patagonia, the Argentine Republic, and the more remote plains of Uruguay and Paraguay. Frequently half-grown birds find their way into the wild-animal markets so easily that they sell at from $40 to $50 each. Great quantities of Rhea feathers are used in the manufacture of feather-dusters. The importers claim that these feathers come from birds reared and kept in captivity, but that claim is vigorously disputed by Dr. W. J. Holland, who asserts in

[1] *Rhe'a americana.*

his book, "To the River Plate and Back," that the makers of feather-dusters are exterminating the Rheas.

The Emu[1] stands half-way, literally, between the ostrich and cassowary, being considerably larger than the latter. Its neck and head are ostrich-like, but in the shape of its body it is more like the cassowary. Like the latter, its feathers seem like long, coarse hair, of a gray-brown color. The lower outline of an Emu's body is almost a straight line, with the legs in the centre, and the highest point of the back curve comes directly above the insertion of the legs. Thus the Emu appears to be, and is, a very well-balanced bird. Its home is the upland plains of Australia, so far back in the interior that it is now found only with great difficulty.

Like the cassowary, the Emu is easily kept in captivity, and is not expensive to buy. In Woburn Park, England, owned by the Duke of Bedford, troops of these birds stalk freely over the vast green lawn; and surely no birds could be more striking or picturesque in such situations. Strange to say, a fully grown Emu can be bought in New York for $125.

The Ceram Cassowary[2] is a big, purplish-black bird, with highly colored patches of naked skin on its upper neck, and an elevated helmet or casque on the base of its upper mandible. Its feathers look like coarse and stiff hair from 3 to 6 inches in length, and its legs and feet are very thick and heavy for its stature. The height of a Cassowary is about 5 feet.

Cassowaries are forest-loving birds. They inhabit Australia, Ceram and other islands of the Malay Archipelago.

[1] *Dro'mae-us no-vae-hol'land-ae.* [2] *Cas-u-a'ri-us gal-e-a'ta.*

Because they take kindly to captivity they are frequently seen in zoological parks and gardens, and travelling shows.

N. Y. Zoological Park.

CERAM CASSOWARY.

THE APTERYX, or KIWI,[1] of New Zealand, is the lowest species in the scale of living birds. It is absolutely without wings, and it lives upon the ground in dark forests, where it can hide. Unfortunately, it has no means of defence, and is

[1] *Ap'te-ryx aus-tral'is.*

too small to escape from a dangerous enemy by running away. It is about the size of a Cochin-China hen, covered with long, stringy, hair-like feathers of a dark-brown color, and it has a long, curved beak like that of an ibis, for probing in the earth. Undoubtedly, the civilized development of New Zealand will cause the total extinction of this very shy but interesting species at no distant day.

In captivity in a zoological garden it is as shy and retiring as a beaver. In order to keep it from fretting itself to death, it is necessary to place in a corner of its cage a sheaf of straw, or a bundle of leafy branches, behind which it can retreat from observation, and lie concealed.

Outside of its New Zealand home, this bird is rarely seen in captivity; which is to be regretted, because it is one of the most interesting forms of the whole avian world.

CHAPTER XXXVIII

THE SLAUGHTER OF NORTH AMERICAN BIRDS

TO the millions of people in North America who are interested in living birds, who are cheered by their presence and benefited by their labors, the most interesting ornithological study of the hour is: What shall we do next to save our birds from extermination? Beside this vital issue all questions of geographic variation, all listings of local species and priority in Latin names sink into utter insignificance.

It is high time that every new book on birds, no matter where published, should in its first pages devote a liberal portion of its space to the all-important subject of bird protection. To study birds in an academic way while scores of species are being exterminated, and make no effort to arrest the slaughter, is exactly like the music-making of Nero while Rome was being destroyed by fire. There are now duties devolving upon every ornithologist which no high-minded and conscientious man or woman can evade without dishonor. The cause needs work and publicity, and it greatly needs money. Those who cannot supply one should furnish the other.

THE WAR OF EXTERMINATION: ITS MEN AND ITS METHODS.—There are three kinds of extermination:

The practical extermination of a species means the destruction of its members to an extent so thorough and wide-spread that the species disappears from view, and living specimens of it cannot be found by seeking for them. In North America this is to-day the status of the whooping crane, upland plover, and several other species. If any individuals are living, they will be met with only by accident.

The absolute extermination of a species means that not one individual of it remains alive. Judgment to this effect is based upon the lapse of time since the last living specimen was observed or killed. When five years have passed without a living "record" of a wild specimen, it is time to place a species in the class of the totally extinct.

Extermination in a wild state means that the only living representatives are in captivity or otherwise under protection. This is the case of the heath hen, and David's deer, of China. The American bison is saved from being wholly extinct as a *wild* animal by the remnant of about three hundred head in northern Athabasca, and forty-nine head in the Yellowstone Park.

The extermination of the birds of North America began A. D. 1800, when whalers attacked the great auk for its oil, and clubbed that species out of our avifauna. The next important step concerned the passenger pigeon; but in the West Indies other species were swept away so quickly and so thoroughly that we scarcely learned of their existence until they were extinct. It is of historic interest to record here a list of the species of North American birds that have become totally extinct during our own time.

THE GREAT AUK—*Plautus impennis* (Linn.), was a sea-going diving bird about the size of a domestic goose, related to the guillemots, murres and puffins. For a bird endowed only with flipper-like wings, and therefore absolutely unable to fly, this species had an astonishing geographic range. It embraced the shores of northern Europe to North Cape, southern Greenland, southern Labrador and the Atlantic coast of North America as far south as Massachusetts. Some say, "as far south as Massachusetts, the Carolinas and Florida," but that remains to be proven. In the life history of this bird, a great tragedy was enacted in 1800 by sailors, on Funk Island, north of Newfoundland, where men were landed by a ship, and spent several months slaughtering Great Auks and trying out their fat for oil. In this process the bodies of thousands of auks were burned as fuel, in working up the remains of tens of thousands of others.

On Funk Island, a favorite breeding-place, the Great Auk was exterminated in 1840, and in Iceland in 1844. Many natives ate this bird with relish and, being easily captured, either on land or sea, the commercialism of its day soon obliterated the species. The last living specimen was seen in 1852, and the last dead one was picked up in Trinity Bay, Ireland, in 1853. There are about eighty mounted and unmounted skins in existence, four skeletons, and quite a number of eggs. An egg is worth about $1,200 and a good mounted skin at least double that sum.

THE LABRADOR DUCK, *Camptorhynchus labradorius* (Gmel.).—This handsome sea-duck, of a species related to the eider ducks of arctic waters, became totally extinct about

1875, before the scientific world even knew that its existence was threatened. With this species, the exact and final cause of its extinction is to this day unknown. It is not at all probable, however, that its unfortunate blotting out from our bird fauna was due to natural causes and, when the truth becomes known, it is very probable that the hand of man will be revealed.

The Labrador Duck bred in Labrador, and once frequented our Atlantic coast as far south as Chesapeake Bay; but it is said that it never was very numerous, at least during the twenty-five years preceding its disappearance. About thirty-five skins and mounted museum specimens are all that remain to prove its former existence, and I think there is not even one skeleton.

The Pallas Cormorant, *Carbo perspicillatus* (Pallas).—In 1741, when the Russian explorer, Commander Bering, discovered the Bering or Commander Islands, in the far-north Pacific, and landed upon them, he also discovered this striking bird species. Its plumage both above and below was a dark metallic-green, with blue iridescence on the neck and purple on the shoulders. A pale ring of naked skin around each eye suggested the Latin specific name of this bird. The Pallas Cormorant became totally extinct, through causes not positively known, about 1852.

The Passenger Pigeon.—This extinct species has already been set forth in preceding pages.

The Eskimo Curlew, *Numenius borealis* (Forst.).—This valuable game bird once ranged all along the Atlantic coast of North America, and wherever found it was prized for the

SIX RECENTLY EXTERMINATED NORTH AMERICAN BIRDS.

Great Auk
Eskimo Curlew.
Passenger Pigeon.

Labrador Duck.
Pallas Cormorant.
Carolina Parrakeet.

table. It preferred the fields and meadows to the shore lines, and was the companion of the plovers of the uplands, especially the golden plover. "About 1872," says Mr. Forbush, "there was a great flight of these birds on Cape Cod and Nantucket. They were everywhere; and enormous numbers were killed. They could be bought of boys at six cents apiece. Two men killed $300 worth of these birds at that time."

Apparently, that was the beginning of the end of the "Dough Bird," which was another name for this curlew. In 1908 Mr. G. H. Mackay stated that this bird and the golden plover had decreased 90 per cent in fifty years, and in the last ten years of that period 90 per cent of the remainder had gone. "Now (1908)," says Mr. Forbush, "ornithologists believe that the Eskimo Curlew is practically extinct, as only a few specimens have been recorded since the beginning of the twentieth century." The very last record is of two specimens collected at Waco, York County, Nebraska, in March, 1911, and recorded by Mr. August Eiche. Of course, it is possible that other individuals may still survive; but so far as our knowledge extends, the species is absolutely dead.

In the West Indies and the Guadeloupe Islands, five species of macaws and parrakeets have passed out without any serious note of their disappearance on the part of the people of the United States. It is at least time to write brief obituary notices of them.

The Cuban Tricolored Macaw, *Ara tricolor* (Gm.). In 1875, when the author visited Cuba and the Isle of Pines, he

was informed by Professor Poey that he was "about ten years too late" to find this fine species alive. It was exterminated for food purposes about 1864, and only four specimens are known to be in existence.

Gosse's Macaw, *Ara gossei* (Roth.).—This species once inhabited the island of Jamaica. It was exterminated about 1800, and so far as known not one specimen of it is in existence.

Guadeloupe Macaw, *Ara guadeloupensis* (Clark).—All that is known of the life history of this large bird is that once it inhabited the Guadeloupe Islands. The date and history of its disappearance are both unknown, and there is not one specimen of it in existence.

Yellow-Winged Green Parrot, *Amazona olivacea* (Gm.).—Of the history of this Guadeloupe species, also, nothing is known, and there appear to be no specimens of it in existence.

Purple Guadeloupe Parrakeet, *Anodorhynchus purpurescens* (Rothschild).—This is another dead species that once lived in the Guadeloupe Islands, and passed away silently and unnoticed at the time, leaving no records of its existence, and no specimens.

The Carolina Parrakeet, *Conuropsis carolinensis* (Linn.).—The fate of this charming little green-and-yellow bird has already been described.

Species of North American Birds Threatened with Extermination.—At this point I must content myself with entering here only a list of the next candidates for oblivion, which is as follows:

Whooping Crane.
Trumpeter Swan.
American Flamingo.
Roseate Spoonbill.
Scarlet Ibis.
Long-Billed Curlew.
Hudsonian Godwit.
Upland Plover.
Red-Breasted Sandpiper.
Golden Plover.
Dowitcher.
Willet.
Pectoral Sandpiper.
Black-Capped Petrel.
American Egret.
Snowy Egret.
Wild Turkey.
Band-Tailed Pigeon.
Heath Hen.
Sage Grouse.
Prairie Sharp-Tail.
Pinnated Grouse.
White-Tailed Kite.

It is possible that our new law for the federal protection of migratory birds may save and bring back a few of these species; but I regard the great majority of them as absolutely doomed. Some of these will go out as the special victims of sportsmen and gunners; and others will go—in South America—as the prey of the rapacious scourge of bird life throughout the world known as "the feather trade."

Until recently the beautiful wood duck stood in the above list; but the operation of the federal migratory bird law, giving it complete protection everywhere in the United States has reasonably insured its survival.

At present, none of the grouse of the United States are protected from extinction by the new federal law. Certainly the pinnated grouse should have been permanently protected. The preservation of all our species of grouse, quail and ptarmigan depends upon the various states inhabited by those species, and west of the Great Plains not one state is adequately protecting any grouse species. The legislators are afraid of the sportsmen—afraid to do their duty toward the grouse; and the birds are being *exterminated according to law!*

THE EXTERMINATORS AND THEIR METHODS

The destroyers of the wild life of North America constitute a mighty army of destruction. It spreads over almost every square mile of this continent (saying naught at present of other continents!). The men and boys in that army number millions. They employ a bewildering variety of destructive devices, and they make various uses of the products of their slaughter. That army is powerful, all-pervading, selfish and merciless. In order to convey a proper understanding of the conditions that threaten our feathered friends and allies, it is worth while to pause long enough to consider a few leading features.

The things that have created the Army of Destruction, and rendered its continued existence a possibility are as follows:

1.—The absence of adequate protective laws.

2.—Laws that are absurdly and fatally liberal to the killers.

3.—The non-enforcement of existing laws, over wide areas.

4.—A vicious and deadly contempt for the law.

5.—The enormous abundance of deadly firearms.

6.—Fear of hurting the feelings of game-hogs.

7.—Scarcity of campaign money with which to fight the destroyers.

In view of this deadly combination against our wild life, is it any wonder that our birds and mammals, little and big, good, bad and neutral, have gone down before it like grass before the mower's scythe? Is it not a wonder that anything wild remains alive in 1914?

THE REGULAR ARMY OF DESTRUCTION.—This motley gathering contains all sorts and conditions of men who kill wild things. The character of the crowd varies by many downward steps from the gentleman sportsman who goes hunting because he loves Nature, and who kills either very little or nothing at all, down to the sordid, law-breaking "game-hog"[1] and meat-hunter who greedily kills all that the law allows and as much more as he can kill without detection. From the number of hunting licenses annually bought and paid for, we are able to judge clearly the extent and deadliness of the regular army of destroyers now operating against wild life in our land. I have been at some pains to collect the following records:

THE UNITED STATES ARMY OF DESTRUCTION

Hunting Licenses issued in 1911

Alabama	5,090	Montana	59,291
California	138,689	Nebraska	39,402
Colorado	41,058	New Hampshire	33,542
Connecticut	19,635	New Jersey	61,920
Idaho	50,342	New Mexico	7,000
Illinois	192,244	New York	150,222
Indiana	54,813	Rhode Island	6,541
Iowa	91,000	South Dakota	31,054
Kansas	44,069	Utah	27,800
Louisiana	76,000	Vermont	31,762
Maine	2,552	Washington, about	40,000
Massachusetts	45,039	Wisconsin	138,457
Michigan	22,323	Wyoming	9,721
Missouri	66,662		
Total number of regularly licensed gunners			1,486,228

[1] The term "game-hog" was coined in 1897 by G. O. Shields, and it has come into general use. It has been recognized by a judge on the bench as an appropriate term to apply to all men who selfishly slaughter wild game beyond the limits of decency. Although it is a harsh term, its has jarred a hundred thousand men into

The average for the twenty-seven states that issued licenses as shown above is 55,046 for each state.

Now, the twenty-one states issuing no licenses, or not reporting, produced in 1911 fully as many gunners per capita as did the other twenty-seven states. Computed fairly on existing averages, they must have turned out a total of 1,155,966 gunners, making for all the United States **2,642,194** armed men and boys warring upon the remnant of game in 1911. We are not counting the large number of lawless hunters who never take out licenses.

Bird and Mammal Slaughter According to Law.—It is difficult to decide which influence has been, and still is, most deadly to our vanishing wild life—illegal slaughter or killing according to law. We are inclined to believe that in the thickly populated, well-protected localities it is the legalized slaughter that is most deadly, while in the thinly populated states of the Far West it is the illegal destruction of game that is literally wiping it off the earth. One thing, however, is sure. If legalized slaughter could be stopped, it would be possible to stop about three-fourths (or more) of the illegal work.

We have already shown the figures which fairly represent the number of men and boys which we know hunt legally, every year, in the United States, and our calculation for the remainder of legal shooters brings the total beyond two and one-half millions. There is at least one excellent authority who places the total at *five millions!*

their first realization of the fact that to-day there is a difference between decency and indecency in the pursuit of game. The use of this term has done very great good; and there is no softer equivalent that can take its place.

Now, *how long* can our remaining game birds and mammals endure before even *two and one-half million* well-armed men and boys, eager and keen to "kill something," and get a dead-game equivalent for their annual expenditure in guns, ammunition, travel and subsistence?

In addition to the hunters themselves, they are assisted by thousands of expert guides, thousands of horses, thousands of dogs, hundreds of automobiles and hundreds of thousands of tents. Each big-game hunter has an experienced guide who knows the haunts and habits of the game, the best feeding-grounds, the best trails and everything else that will aid the hunter in taking the game at a disadvantage and destroying it. The big-game rifles are of the highest power, the longest range, the greatest accuracy and the best repeating mechanism that modern inventive genius can produce. It is said that in Wyoming the Maxim silencer is now being used. England has produced a weapon of a new type, called "the scatter rifle," which is intended for use on ducks. The best binoculars are used in searching out the game, and horses carry the hunters and guides as near as possible to the game. For bears baits are freely used, and in the pursuit of pumas dogs are employed to the limit of the available supply.

The deadliness of the automobile in hunting already is so apparent that North Dakota has wisely and justly forbidden its use by law (1911). The swift machine enables city hunters to penetrate game regions they could not reach with horses, and hunt through from four to six localities per day, instead of one only, as formerly. The use of automobiles in hunting should be everywhere prohibited.

Every appliance and assistance that money can buy, the modern sportsman secures to help him against the game. The game is beset during its breeding-season by various wild enemies—foxes, cats, wolves, pumas, lynxes, eagles and many other predatory species. The only help that it receives is in the form of an annual close season—*which thus far has saved in America only a few local moose, white-tailed deer and a few game birds from steady and sure extermination.*

The bag limits, on which vast reliance is placed to preserve the wild game, are a fraud, a delusion and a snare! The few local exceptions only prove the generality of the rule. In every state, without a single exception, the bag limits are far too high, and the laws are of deadly liberality. In many states the bag-limit laws on birds are an absolute dead letter. Fancy the 125 wardens of New York enforcing the bag-limit laws on 150,000 gunners! It is this horrible condition that is enabling the licensed army of destruction to get in its deadly work on the game, all over the world. In America the over-liberality of the laws is to blame for two-thirds of the carnival of slaughter, and the successful evasions of the law are responsible for the other third.

Market-Hunting.—The most destructive form of bird-slaughter according to law is market-killing. The market-hunter works seven days a week, regardless of weather. He begins at sunrise and shoots until sunset, or after. He is rarely hampered by any bag limits or checked by game wardens, and his only "limit" is the range of his guns. When market-hunting is allowed by law, he can also use automatic and "pump" guns, shotguns of large calibre, batteries, sink-

WILD DUCKS IN THE WICHITA NATIONAL BISON RANGE, 1913.

An object lesson in bird protection.

boxes, and every other device known to man, with the possible exception of punt guns, and sail and power boats.

The reasons why market-shooting is so deadly destructive to wild life are not obscure.

The true sportsman hunts during a very few days only each year. The market-gunners shoot early and late, seven days a week, month after month. When game is abundant, the price is low, and a great quantity must be killed in order to make it pay well. When game is scarce, the market prices are high, and the shooter makes the utmost exertions to find the last of the game in order to secure the "big money."

When game is protected by law, thousands of people with money desire it for their tables, just the same, and are willing to pay fabulous prices for what they want, when they want it. Many a dealer is quite willing to run the risk of fines, because fines don't really hurt; they are only annoying. The dealer wishes to make the big profit, and *retain his customers;* "and besides," he reasons, "if I don't supply them some one else will; so what is the difference?" When game is scarce, prices high and the consumer's money ready, there are a hundred tricks to which shooters and dealers willingly resort to ship and receive unlawful game without detection.

The Division of Meat-Shooters contains all men who sordidly shoot for the frying-pan—to save bacon and beef at the expense of the public, or for the markets. There are a few wilderness regions so remote and so difficult of access that the transportation of meat into them is a matter of much difficulty and expense. There are a very few men in North America who are justified in "living off the country,"

for short periods. The genuine prospectors always have been counted in this class; but all miners who are fully located, all lumbermen and railway-builders, certainly are not in the prospector's class. They are abundantly able to maintain continuous lines of communication for the transit of beef and mutton.

Of all the meat-shooters, the market-gunners who prey on wild fowl and ground game birds for the big-city markets are the most deadly to wild life. Enough geese, ducks, brant, quail, ruffed grouse, prairie chickens, heath hens and wild pigeons have been butchered by gunners and netters for "the market" to have stocked the whole world. No section containing a good supply of game has escaped. In the United States the great slaughtering-grounds have been Cape Cod; Great South Bay, New York; Currituck Sound, North Carolina; Marsh Island, Louisiana; the southwest corner of Louisiana; the Sunk Lands of Arkansas; the lake regions of Minnesota; the prairies of the whole Middle West; Great Salt Lake; the Klamath Lake region (Oregon) and southern California.

The output of this systematic bird-slaughter has supplied the greedy game markets of Boston, New York, Philadelphia, Washington, Baltimore, Chicago, New Orleans, St. Louis, Salt Lake City, San Francisco, Portland and Seattle. The history of this industry, its methods, its carnage, its profits and its losses would make a volume, but we cannot enter upon it here. Beyond reasonable doubt, this awful traffic in dead game is responsible for at least three-fourths of the slaughter that has reduced our game birds to a mere remnant of their former abundance. There is no influence so deadly to wild

life as that of the market-gunner who works six days a week, from sunrise until sunset, hunting down and killing every game bird that he can reach with a choke-bore gun.

During the past five years several of the once-great killing-grounds have been so thoroughly "shot out" that they have

A MARKET-GUNNER AT WORK ON MARSH ISLAND.

Killing Mallards for the New Orleans market. The purchase of this island by Mrs. Russell Sage has now converted it into a bird sanctuary.

ceased to hold their former rank. This is the case with the Minnesota Lakes, the Sunk Lands of Arkansas, the Klamath Lakes of Oregon, and I think it is also true of southern California. The Klamath Lakes have been taken over by the Government as a bird refuge. Currituck Sound, at the northeastern corner of North Carolina, has been so bottled up by the Bayne law of New York state that Currituck's greatest wild-fowl market has been cut off. Last year only one-half the usual number of ducks and geese were killed; and already

many "professional" duck and brant shooters have abandoned the business because the commission merchants no longer will buy dead birds.

Very many enormous bags of game have been made in a day by market-gunners; but rarely have they published any of their records. The greatest kill of which I ever have heard occurred under the auspices of the Glenn County Club, in southern California, on February 5, 1906. Two men, armed with automatic shotguns, fired five shots apiece, and got ten geese out of one flock. In one hour they killed *two hundred and eighteen geese*, and their bag for the day was *four hundred and fifty geese!* The shooter who wrote the story for publication (on February 12, at Willows, Glenn County, California), said: "It being warm weather, the birds had to be shipped at once in order to keep them from spoiling." A photograph was made of the "one hour's slaughter" of two hundred and eighteen geese, and it was published in a western magazine with "C. H. B.'s" story, nearly all of which will be found in Chapter XV of "Our Vanishing Wild Life."

Here is an inexorable law of Nature, to which there are no exceptions:

No wild species of bird, mammal, reptile or fish can withstand exploitation for commercial purposes.

Throughout the whole world the killing of wild game for sale (*i. e.*, game not reared in preserves) should be rigidly and permanently prohibited by law.

The Illegal Slaughter of Birds.—As already intimated, the destruction of our birds and mammals, game and not game, by lawless and brutal methods has been enormous.

It has been in progress, day and night, ever since our first game laws were enacted. In this land of ours the sacred name of Liberty is used by rogues and thieves of a hundred different kinds to cloak their outrageous practices against the common welfare. There are in this country at least five million per-

PTARMIGAN SLAUGHTER IN THE ABSENCE OF LAW, YUKON TERRITORY.
Part of three thousand Ptarmigan slaughtered at Pueblo, near White Horse, by miners and railroad men. The birds are hauled in by the wagon-load.

sons of lawless and criminal instincts, who believe in doing exactly as they please whenever the clutch of the law is not actually upon them. Hundreds of thousands of aliens are coming to our land to make their fortunes, and have their children educated at public expense, whose fixed idea of liberty is that it means license to do as they please.

Against this lawless element, both native and alien, the defenders of wild life always will be at war, in an irrepressible conflict. The following are the most deadly features of the

campaigns of the lawless elements against American wild life:

1.—The illegal slaughter, at all seasons, of game for the pot, to save butchers' bills.

2.—The slaughter by the negroes and poor whites of the South of our most valuable insect-eating birds for food.

3.—The slaughter in the North by Italians and other aliens of birds and small mammals of every description.

4.—The slaughter of song birds in immense numbers by unrestrained boys armed with 22-calibre rifles.

5.—The slaughter of female mountain sheep, female antelope, female deer and female moose under cover of licenses to kill males only; also regardless of licenses or seasons.

Bird-Slaughter for the Millinery Trade.—In an evil moment some heartless enemy of birds conceived the idea of decking the head-gear of civilized women with the wings, tails, heads and also entire skins of wild birds. Very soon the resultant slaughter began to alarm serious-minded and thoughtful persons who believe that we of to-day have no right to destroy the wild-life heritage of our children. In 1899 the Audubon societies began seriously to dispute the right of the feather trade to destroy our finest bird life for commercial profits and for vanity. That contest for the birds of North America has been raging ever since the date mentioned.

To most Americans, the leading facts of our struggle with the feather trade to save our egrets, herons, gulls, terns, grebes, song birds and other species are already known. The Audubonists saved to us the gulls and terns of our Atlantic coast, but the enormously high prices paid for egret plumes,

for the manufacture of "aigrettes," led to what at one period was believed to be the practical extinction of both the white egrets from the avifauna of the United States.

While the plume-hunters were resting in that same belief, the egrets began to steal back from Venezuela, and start colonies on our Gulf coast. As fast as these colonies were found by the Audubonists, wardens were engaged to protect them. To-day there exist in the United States about twenty-one colonies of egrets, which contain a total of perhaps 10,000 egrets and 120,000 herons and ibises, guarded by wardens with modern rifles.

Through a long series of efforts thirteen states have been induced to enact laws prohibiting the sale of aigrettes, and other plumage of native birds. These laws did not, however, prevent the sale of the plumage of foreign birds; and therefore the American market was flooded with plumes of birds-of-paradise, crown pigeon ("goura"), Manchurian eared pheasant ("numidi") and many other forms of wild-bird plumage. In London, Paris and Berlin the annual trade in wild birds' feathers for millinery purposes has assumed enormous proportions. A great many facts and figures regarding London sales and prices will be found in "Our Vanishing Wild Life," Chapter XIII.

A careful study of the situation at large revealed the fact that through their persistent slaughter for the feather trade about one hundred species of birds are threatened with extinction. Without quick protection, by the closing of the European feather markets, the first species to go will be the greater and lesser birds-of-paradise, the crown pigeons of New

Guinea, the eared pheasants of Manchuria, the white egrets of Venezuela, Brazil, Colombia, and China, the condor of the Andes, the trogon, and the Old-World pheasants generally.

The relentless activity of the hunters for the feather trade of Europe may be counted upon eventually to exterminate any species that the evil eye of Fashion once fixes upon as desirable. The talk now being heard in Germany and in England regarding the "breeding" of plume birds for the feather trade is extremely ridiculous. On a commercial basis such breeding is wildly impossible, and no friend of birds should for one moment be deceived by talk regarding it. The story of the successful campaign waged in Congress in 1913 to prohibit the importation of bird plumage has been told in an earlier chapter of this volume.

Unseen Foes of Wild Life.—Besides their other enemies, our wild birds are preyed upon to a serious extent and destroyed by immense numbers of cats and dogs that are allowed to hunt at will; by the sharp-shinned hawk, Cooper hawk, two owl species, the pilot black-snake, red squirrel and bird-shooting boys. Upon parents and teachers there devolves a solemn and imperative duty to teach *vigorously* to all their children and their pupils their bounden duty *to protect and preserve all harmless wild creatures, and especially birds.* Let there be no pastime slaughter of the innocents!